OU-4 Landfill Groundwater Monitoring Results and Analysis

Monitoring Results and Data Review

Groundwater monitoring data for site contaminants of concern (COCs), since the completion of the remedial action in September 1997, is presented in the attached table. The data was reviewed to evaluate progress towards attaining the remedial action objectives (RAOs) identified in the OU-4 Record of Decision (U.S. Army 1996b). Figure 3-2 illustrates well locations and groundwater contours for October 2014. Figure 3-3 provides a spatial summary of analytical results for wells that are monitored.

The monitoring well network includes six shallow wells (AP-5588, AP-8061, AP-10257, AP-10258, AP-10259, and FWLF-4), three intermediate wells (AP-5589, AP-6136, and AP-6138), and four deep wells (AP-6530, AP-6532, AP-6535, and AP-8063).

Nine of the 13 monitoring wells sampled contained one or more COC above the cleanup goals. Trend analysis was performed to augment and verify assessments provided in the annual sampling reports. The analysis consisted of preparing trend plots and evaluation using the Mann-Kendall test, a statistical procedure used to evaluate the significance of trends in contaminant concentrations. Results are discussed below.

Shallow Zone Wells

- **AP-5588** – this well is located immediately downgradient of the capped Landfill Source Area; it has been sampled since the remedial action was implemented. 1,1,2,2-PCA, TCE, and cis 1,2-DCE have consistently been detected above the site cleanup goals. 1,1,2-TCA has frequently been detected above the cleanup goal. Bis(2-ethylhexyl)phthalate was detected above the cleanup goal on two occasions; May 2003 and May 2008. No trends are observed for 1,1,2,2-PCA, 1,1,2-TCA, and vinyl chloride. TCE, cis 1,2-DCE, and benzene concentrations exhibit decreasing trends.
- **AP-8061** – this well is located downgradient of the capped Landfill Source Area and well AP-5588. It has been sampled consistently since September 2001. TCE has been frequently detected above the cleanup goal and benzene has been frequently detected above the cleanup goal prior to October 2011. Bis(2-ethylhexyl)phthalate was detected above the cleanup goal on one occasion, May 2003. No trend is observed for benzene. Downward trends are observed for TCE and cis 1,2-DCE.
- **AP-10257** – this well is located upgradient of the capped Landfill Source Area. It has been sampled during four monitoring events since November 2012. Benzene has been detected above the cleanup goal three occasions. Not enough data is available to evaluate trends.
- **AP-10258** – this well is located upgradient of the capped Landfill Source Area. It has been sampled during four monitoring events since November 2012. Benzene was detected above the cleanup goal on one occasion (October 2014). Not enough data is available to evaluate trends.
- **AP-10259** – this well is located upgradient of the capped Landfill Source Area. It has been sampled during four monitoring events since November 2012. No COCs have been detected above the cleanup goals.

- **FWLF-4** – this well is located immediately upgradient of the capped Landfill Source Area; it has been sampled since the remedial action was implemented. Bis(2-ethylhexyl)phthalate was detected above the cleanup goal on two occasions, December 1998 and May 2003. A downward trend is observed for benzene.

Results indicate that the highest COC concentrations and most frequent detections occur in AP-5588, which is immediately downgradient of the capped Landfill Source Area; COC concentrations decrease with distance downgradient. Decreasing trends are observed for TCE and cis 1,2-DCE in both downgradient wells and for benzene in AP-5588.

Data presented in the 2014 annual sampling report indicate that dissolved oxygen (DO) in the downgradient shallow wells was typically below 1 milligram per liter (mg/L) and that oxidation reduction potential (ORP) varied from approximately 50 millivolts (mV) to -60 mV (FES 2015f). Dissolved iron and sulfate in the downgradient wells were elevated with respect to background. Geochemical conditions are anoxic and suggest that manganese reducing to iron reducing conditions may be present. These conditions are suitable for reductive dechlorination of PCA, TCA, TCE, and DCE.

Intermediate Zone Wells

- **AP-5589** – this well is located immediately downgradient of the capped Landfill Source Area; it has been sampled since the remedial action was implemented. 1,1,2,2-PCA, TCE, vinyl chloride, and bis(2-ethylhexyl)phthalate have occasionally been detected above the cleanup goals. Upward trends are observed for TCE and cis 1,2-DCE. Downward trends are observed for vinyl chloride and benzene.
- **AP-6136** – this well is located immediately downgradient of the capped Landfill Source Area; it has been sampled since the remedial action was implemented. No COCs have been detected above the cleanup goals.
- **AP-6138** - this well is located downgradient of the capped Landfill Source Area and wells AP-5589 and AP-6136. It has been sampled since the remedial action was implemented. Bis(2-ethylhexyl)phthalate was detected above the cleanup goal on two occasions, December 1998 and August 1999. A downward trend is observed for benzene.

Results indicate that the highest concentrations of chlorinated VOCs and the most frequent detections occur in AP-5589, which is immediately downgradient of the capped Landfill Source Area. The concentrations decrease with distance downgradient. TCE and cis 1,2-DCE are increasing in AP-5589, while vinyl chloride and benzene are decreasing. Benzene is also decreasing in AP-8061. Bis(2-ethylhexyl)phthalate occurs most frequently and at the highest relative concentrations in AP-6136 and AP-6138.

Data presented in the 2014 annual sampling report indicate that DO in the downgradient intermediate wells was typically below 1 mg/L and that ORP varied from approximately 50 mV to -72 mV (FES 2015l). Dissolved iron and sulfate in the downgradient wells were elevated with respect to background. Geochemical conditions in the intermediate zone are anoxic and suggest that manganese reducing to iron reducing conditions may be present. These conditions are suitable for anaerobic reductive dechlorination of TCE to cis-1,2-DCE, which may explain the increasing concentrations at AP-5589. The increasing TCE concentrations at this location may be a result of abiotic transformation of 1,1,2,2-TCA or a residual TCE plume from beneath the landfill.

Deep Zone Wells

- **AP-6530** – this well is located downgradient of the capped Landfill Source Area and wells AP-6532 and AP-8063. It has been sampled since October 2010. Benzene was detected above the cleanup goal on three occasions. Bis(2-ethylhexyl)phthalate was detected above the cleanup goal on one occasion. No trend is observed for benzene.
- **AP-6532** – this well is located downgradient of the capped Landfill Source Area. It has been sampled since the remedial action was implemented. Benzene has been frequently detected above the cleanup goal. Bis(2-ethylhexyl)phthalate was detected above the cleanup level on five occasions. An upward trend is observed for benzene.
- **AP-6535** – this well is located downgradient of the capped Landfill Source Area and wells AP-6532 and AP-8063. It has been sampled since October 2010. No COCs have been detected above the cleanup goals. No trends are observed for TCE, cis-1,2-DCE, vinyl chloride, benzene, and bis(2-ethylhexyl)phthalate.
- **AP-8063** – this well is located downgradient of the capped Landfill Source Area. It has been sampled since September 2001. 1,1,2,2-PCA, TCE, and cis 1,2-DCE have been frequently detected above the cleanup goals. Vinyl chloride was detected above the cleanup goals on two occasions, June 2006 and October 2007. Bis(2-ethylhexyl) phthalate was detected above the cleanup goal on four occasions. Upward trends are observed for TCE and cis 1,2-DCE. Downward trends are observed for vinyl chloride and benzene. No trend is observed for 1,1,2,2-PCA.

Results indicate that the highest concentrations of chlorinated VOCs and the most frequent detections occur in AP-8063, which is the closest downgradient well to the capped landfill. The concentrations decrease with distance downgradient. TCE and cis-1,2-DCE are increasing, 1,1,2,2-PCA exhibits no trend, and vinyl chloride and benzene are decreasing in AP-8063. Benzene occurs most frequently and at the highest relative concentrations in AP-6532; where the concentrations are increasing. This well is north of AP-8063. Benzene is also increasing in AP-6530, although the assessment is based on a small number of samples (seven).

Data presented in the 2014 annual sampling report indicate that DO in the downgradient deep wells was typically below 1 mg/L and that ORP varied from approximately 20 mV to -71 mV (FES 2015l). Dissolved iron and sulfate in the downgradient wells were elevated with respect to background. Geochemical conditions in the deep zone are anoxic and suggest that manganese reducing to iron reducing conditions may be present. These conditions are suitable for anaerobic reductive dechlorination of TCE to cis-1,2-DCE, which may explain the increasing concentrations at AP-8063. The increasing TCE concentrations at this location may be a result of abiotic transformation of 1,1,2,2-TCA or a residual TCE plume from beneath the landfill.

Comparison to the 2014 Annual Sampling Report

The 2014 Annual Sampling Report (FES 2015l) provided the following long-term monitoring recommendations that were established by the remedial project managers during a February 2015 Federal Facility Agreement meeting:

Shallow Zone Wells

- AP-5588 – conduct annual monitoring during the spring season because results do not vary significantly between the spring and fall sampling events

- FWLF-4 – conduct annual monitoring during the spring season because COCs have not exceeded the cleanup levels since 2003
- AP-8061 – conduct annual monitoring during the spring and fall seasons
- AP-10257 – conduct annual monitoring during the spring and fall seasons to evaluate the presence of benzene in groundwater upgradient of the landfill
- AP-10258 – conduct annual monitoring during the spring and fall seasons to evaluate the presence of benzene upgradient of the landfill
- AP-10259 – discontinuing monitoring because no COCs have been detected for four consecutive sampling events

This five-year review agrees with these recommendations; no other opportunities for optimization were identified.

Intermediate Zone Wells

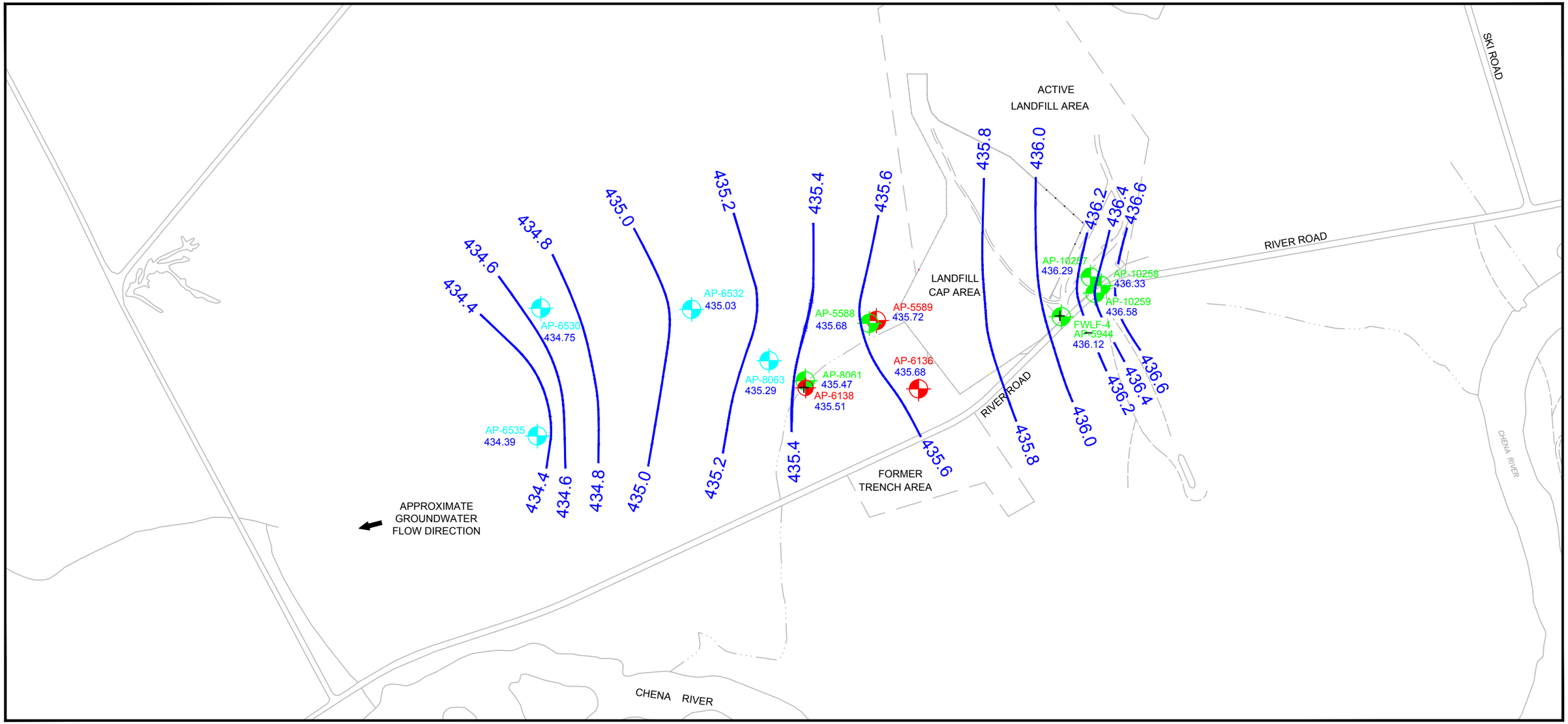
- AP-5589 – conduct annual monitoring during the spring season to evaluate bis(2-ethylhexyl)phthalate that was detected above the cleanup level in June 2013
- AP-6136 – discontinue monitoring because COCs have not been detected or detected at low concentrations below the cleanup levels since 2006
- AP-6138 – discontinue monitoring because COCs have not been detected or detected at low concentrations below the cleanup levels since 2006

This five-year review agrees with these recommendations; no other opportunities for optimization were identified.

Deep Zone Wells

- AP-8063 – conduct annual monitoring during the spring season because results do not vary significantly between the spring and fall sampling events
- AP-6530 – conduct annual monitoring during the spring and fall seasons
- AP-6532 – conduct annual monitoring during the spring and fall seasons
- AP-6535 – conduct annual monitoring during the spring and fall seasons

This five-year review agrees with these recommendations; no other opportunities for optimization were identified.



LEGEND

AP-6318 435.51 — INTERMEDIATE WELLS <90 FEET (WITH GROUNDWATER ELEVATION)

AP-6535 434.39 — DEEP WELLS >90 FEET (WITH GROUNDWATER ELEVATION)

AP-5588 435.68 — SHALLOW WELLS <30 FEET (WITH GROUNDWATER ELEVATION)

OCTOBER 2014 GROUNDWATER CONTOURS

NORTH

0 250 500 1,000

SCALE IN FEET

FAIRBANKS ENVIRONMENTAL SERVICES
3538 INTERNATIONAL STREET
FAIRBANKS, ALASKA

ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

October 2014 Groundwater Contours at the Landfill

2014 Annual Sampling Report
Operable Unit 4
Fort Wainwright, Alaska

CONTRACT:	FIGURE:	DATE:
W911KB-12-D-0001	3-2	6/15

WELL AP-5589
Top of PVC 452.30
Total Well Depth (ft) 56.2

	JUL 97	DEC 98	MAR 99	JUN 99	AUG 99	MAR 00	AUG 00	MAR 01	SEP 01	JUN 02	OCT 02
Groundwater Elevation (feet)	420.63	428.84	427.82	428.64	429.19	428.07	429.37	433.99	434.64	435.56	436.03
Benzene	4.00	4.03	4.00	4.01	4.28	3.87	3.86	4.10	4.10	3.54	3.32
cis-1,2-Dichloroethene	13.0	9.83	9.00	10.7	11.1	9.44	8.58	9.00	14.0	7.37	8.19
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	2.00	1.16	ND(1.0)	ND(1.0)	ND(1.0)	1.30	ND(5.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)
Trichloroethene	4.00	3.47	4.00	3.73	3.96	3.74	3.52	3.90	4.50	3.05	3.49
Vinyl Chloride	ND(1.0)	1.19	ND(1.0)	1.24	1.44	1.50	1.40	1.70	**2.60**	ND(1.0)	1.41
bis (2-ethylhexyl)phthalate	1.00	ND(11)	**9.30**	NA	ND(11)	ND(10)	ND(10)	2.80	ND(5.0)	ND(20)	ND(20)
Methane											

	MAY 03	SEP 03	JUN 04	OCT 04	MAY 05	OCT 05	JUNE 06	OCT 06	MAY 07	OCT 07	MAY 08
Groundwater Elevation (feet)	434.45	437.85	435.73	433.41	435.63	434.73	434.99	434.59	434.07	434.40	435.35
Benzene	3.47	4.25	3.95	3.38	3.58	3.43	3.98	3.40	3.20	2.54	3.30
cis-1,2-Dichloroethene	8.39	9.28	10.2	11.0	10.9	10.5	12.0	14.0	11.1	13.4	14.0
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	0.40	2.08	0.67	**8.42**	**6.34**	**5.60**	**24.5**	ND(0.5)	0.23
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.094 J	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	3.01	3.19	3.42	3.95	3.01	3.33	3.84	3.90	**5.04**	3.83	3.10
Vinyl Chloride	1.33	1.07	1.64	**2.10**	1.39	1.55	**2.64**	1.20	1.32	1.61	1.10
bis (2-ethylhexyl)phthalate	R	ND(16)	ND(9.3)	ND(10)	ND(10)	ND(10)	ND(10)	ND(16)	ND (10.4)	ND (10.7)	4.00
Methane											

	SEPT 08	JUNE 09	NOV 09	MAY 10	OCT 10	JULY 11	OCT 11	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	436.23	434.72	434.70	433.82	433.83	436.56	434.98	434.38	435.93	434.23	435.78
Benzene	3.60	3.00	3.40	2.80	3.50	3.3	3.1	2.6	3.0	2.4	3.3
cis-1,2-Dichloroethene	15.0	13.0	14.0	13.0	17	18	19	16	16	14	16
1,1,2,2-Tetrachloroethane	0.22	0.63	**5.6**	4.9	ND(1.0)	ND(1.0)	ND(1.0)	0.31	ND(0.4)	ND(0.4)	1.5
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Trichloroethene	3.80	3.90	**5.10**	4.10	4.90	4.4	4.4	4.5	4.5	3.6	4.9
Vinyl Chloride	1.10	ND(1.0)	1.00	ND(1.0)	0.97	1.2	0.85	0.66	0.60	0.71	0.88
bis (2-ethylhexyl)phthalate	ND(15)	ND(15)	ND(9.6)	ND(9.6)	1.6	0.79	ND(5.2)	0.97	**23**	ND(0.2)	ND(0.3)
Methane			6,200	2,400	1,400	2,700	2,800	5,300	1,700	4,200	4,100

WELL AP-5588
Top of PVC 451.28
Total Well Depth (ft) 29.03

	JUL 97	DEC 98	MAR 99	JUN 99	AUG 99	MAR 00	AUG 00	MAR 01	SEP 01	JUN 02	OCT 02
Groundwater Elevation (feet)	430.90	428.32	427.80	428.72	429.31	428.12	429.45	434.03	434.66	435.70	435.9
Benzene	2.00	2.27	2.00	2.42	3.07	2.26	2.29	2.50	2.10	1.64	2.37
cis-1,2-Dichloroethene	**160**	**170**	**190**	**184**	**176**	**173**	**168**	**160**	**220**	**117**	**127**
1,1,2,2-Tetrachloroethane	**1,700**	**2,020**	**2,400**	**1,920**	**1,570**	**2,130**	**2,180**	**2,000**	**1,300**	**934**	**1,260**
1,1,2-Trichloroethane	**8.00**	**10.2**	**11.0**	**9.92**	**9.41**	**10.1**	**9.71**	**10.0**	**7.70**	**5.46**	**7.10**
Trichloroethene	**280**	**196**	**320**	**243**	**252**	**271**	**257**	**440**	**240**	**168**	**193**
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	1.11	1.37	1.17	1.31	1.10	1.30	ND(1.0)	1.33
bis (2-ethylhexyl)phthalate	ND(11)	ND(11)	0.60	NA	ND(11)	ND(10)	ND(11)	3.40	ND(5.1)	ND(21)	ND(20)
Methane											

	MAY 03	SEP 03	JUN 04	OCT 04	MAY 05	OCT 05	JUNE 06	OCT 06	MAY 07*	OCT 07	MAY 08
Groundwater Elevation (feet)	434.42	436.37	435.15	432.64	435.61	434.97	434.98	434.57	434.11	434.36	435.31
Benzene	1.93	ND (4.0)	2.25	2.09	2.49	2.42	2.52	2.10	1.12	0.34	2.60
cis-1,2-Dichloroethene	**162**	**121**	**183**	**168**	**133**	**160**	**169**	**200**	ND(25)	**148**	**150**
1,1,2,2-Tetrachloroethane	**1,990**	**1,820**	**2,590**	**2,990**	**1,600**	**2,820**	**2,870**	**2,600**	**378**	**2,840**	**1,200**
1,1,2-Trichloroethane	**9.52**	**9.53**	**11.8**	**13.2**	**7.58**	**12.4**	**13.8**	**13**	**13.9**	**10.4**	**6.00**
Trichloroethene	**248**	**203**	**314**	**295**	**205**	**279**	**305**	**320**	**31.0**	**290**	**170**
Vinyl Chloride	0.88	ND(10)	1.21	1.45	1.49	1.52	**2.42**	ND(10)	1.42	1.06	1.30
bis (2-ethylhexyl)phthalate	**7.30**	ND(16)	ND(9.3)	ND(10)	ND(10)	ND(10)	ND(9.7)	ND(17)	ND(3.23)	ND(11.8)	**7.20**
Methane											

	SEPT 08	JUNE 09	NOV 09	MAY 10	OCT 10	JULY 11	OCT 11	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	436.20	434.73	434.63	433.82	433.83	436.56	434.96	434.50	435.92	434.20	435.75
Benzene	2.30	2.20	ND(50)	2.20	ND(50)	2.6	1.9	2.0	1.4	1.5	0.76
cis-1,2-Dichloroethene	**150**	**170**	**190**	**180**	**190**	**140**	**130**	**120**	**110**	**110**	**120**
1,1,2,2-Tetrachloroethane	**1,600**	**2,300**	**2,600**	**2,800**	**2,400**	**890**	**950**	**830**	**940**	**980**	**1,300**
1,1,2-Trichloroethane	**7.40**	**9.20**	ND(50)	**73**	ND(50)	**5.2**	**5.7**	**6.2**	4.7	4.2	**5.4**
Trichloroethene	**180**	**310**	**310**	**260**	**360**	**170**	**190**	**170**	**130**	**140**	**190**
Vinyl Chloride	1.10	1.20	ND(50)	0.51	ND(50)	1.5	1.0	ND(0.4)	0.51	0.96	0.4
bis (2-ethylhexyl)phthalate	0.74	ND(0.15)	ND(9.6)	0.63	ND(4.8)	0.53	ND(5)	1.1	0.69	ND(0.27)	ND(3)
Methane			3,800	1,200	1,100	2,200	1,100	1,700	1,100	1,700	1,400

WELL AP-6854A
Top of PVC 450.06
Total Well Depth (ft) 64.8

	OCT 10
Groundwater Elevation (feet)	434.26
Benzene	0.45
cis-1,2-Dichloroethene	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)
Trichloroethene	ND(1.0)
Vinyl Chloride	0.95
bis (2-ethylhexyl)phthalate	ND(4.8)
Methane	14,000

WELL AP-6854
Top of PVC 449.17
Total Well Depth (ft) 100

	OCT 10
Groundwater Elevation (feet)	434.27
Benzene	0.44
cis-1,2-Dichloroethene	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)
Trichloroethene	ND(1.0)
Vinyl Chloride	ND(1.0)
bis (2-ethylhexyl)phthalate	ND(4.8)
Methane	14,000

WELL FW-LF-4
Top of PVC 452.26
Total Well Depth (ft) 25.1

	DEC 98	MAR 99	JUN 99	AUG 99	MAR 00	AUG 00	MAR 01	SEP 01	JUN 02	OCT 02	MAY 03
Groundwater Elevation (feet)	429.35	428.27	429.25	429.60	428.50	429.95	433.89	434.64	435.54	435.87	434.91
Benzene	1.97	2.00	1.67	1.58	1.53	1.31	1.40	1.40	0.91	1.26	1.32
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.41	0.36
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
bis (2-ethylhexyl)phthalate	**15.3**	2.20	NA	ND(11)	ND(10)	ND(10)	ND(5.0)	4.30	ND(22)	ND(22)	**6.7**
Methane											

	SEP 03	JUN 04	OCT 04	MAY 05	OCT 05	JUNE 06	OCT 06	MAY 07	OCT 07	MAY 08	SEPT 08
Groundwater Elevation (feet)	437.13	436.20	433.39	435.17	434.97	435.04	434.63	434.00	434.47	435.36	436.48
Benzene	1.34	1.43	1.80	1.87	1.57	1.49	1.50	1.27	ND(0.4)	1.10	0.90
cis-1,2-Dichloroethene	0.41	0.36	0.44	0.50	ND(1.0)	0.45	0.52	ND(1.0)	0.95	0.41	0.38
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(1.0)	ND(0.5)	ND(0.5)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
bis (2-ethylhexyl)phthalate	ND(16)	ND(9.3)	ND(10)	ND(10)	ND(10)	ND(9.7)	ND(16)	ND(10.8)	ND(11.1)	1.80	ND(15)
Methane											

	JUNE 09	NOV 09	MAY 10	OCT 10	JULY 11	OCT 11	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	434.66	434.74	433.82	434.0	436.67	435.02	429.53	436.07	434.40	437.07
Benzene	1.2	1.4	1.2	1.1	0.94	0.84	0.51	0.52	0.4	1.2
cis-1,2-Dichloroethene	0.40	0.47	ND(1.0)	0.50	0.36	0.37	0.31	0.26	0.19	0.47
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.5)	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
bis (2-ethylhexyl)phthalate	ND(15)	ND(9.6)	5.4	ND(4.8)	0.49	0.37	1.1	0.66	0.8	13
Methane		120	29	36	110	70	120	120	220	190

WELL AP-6132
Top of PVC 456.06
Total Well Depth (ft) 23.7

	AUG 99	MAR 00	AUG 00	MAR 01	SEP 01	JUN 02	OCT 02	MAY 03	SEP 03	JUN 04	OCT 04	MAY 05
Groundwater Elevation (feet)	429.97	429.80	430.85	435.75	436.13	436.77	438.29	435.91	439.08	436.97	434.11	436.6
Benzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(0.5)	ND(0.5)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.5)	ND(0.5)	ND(0.5)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
bis (2-ethylhexyl)phthalate	ND(11)	ND(9.9)	ND(10)	2.10	1.50	ND(22)	ND(20)	5.90	ND(17)	ND(9.3)	ND(10)	ND(10)
Methane												

	OCT 05	JUNE 06	OCT 06	MAY 07	OCT 07	MAY 08	SEPT 08	JUNE 09	NOV 09	MAY 10	OCT 10
Groundwater Elevation (feet)	436.58	435.75	435.61	435.04	435.39	435.87	438.84	435.45	435.42	434.35	434.76
Benzene	ND(0.5)	ND(0.4)	ND(1.0)	ND(0.4)	ND(0.4)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(0.5)	ND(0.5)	ND(1.0)	0.96	ND(0.5)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	0.89	ND(1.0)	ND(1.0)	0.31	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
bis (2-ethylhexyl)phthalate	ND(10)	ND(9.8)	ND(16)	ND(10.5)	ND(11.6)	2.50	0.34	ND(1.0)	ND(9.5)	3.2	1.2
Methane									130	32	99

WELL AP-10257
Top of PVC 454.01
Total Well Depth (ft) 24.45

	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	434.51	436.22	434.40	436.31
Benzene	**14**	3.4	**17**	**6.6**
cis-1,2-Dichloroethene	3.9	1.6	3.9	2.0
1,1,2,2-Tetrachloroethane	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Trichloroethene	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
bis (2-ethylhexyl)phthalate	1.1	1.1	1.1	ND(2.0)
Methane	1,400	46	1,200	300

WELL AP-10258
Top of PVC 453.54
Total Well Depth (ft) 18.90

	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	434.64	436.22	434.42	436.29
Benzene	ND(0.2)	0.40	2.7	**5.7**
cis-1,2-Dichloroethene	0.45	0.39	1.7	2.5
1,1,2,2-Tetrachloroethane	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Trichloroethene	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
Vinyl Chloride	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
bis (2-ethylhexyl)phthalate	0.98	0.76	ND(0.26)	ND(2.9)
Methane	15	44	160	280

WELL AP-10259
Top of PVC 453.95
Total Well Depth (ft) 19.20

	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	434.75	436.31	434.44	436.57
Benzene	0.72	0.7	0.18	ND(0.4)
cis-1,2-Dichloroethene	0.45	0.37	ND(0.2)	ND(0.4)
1,1,2,2-Tetrachloroethane	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Trichloroethene	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
bis (2-ethylhexyl)phthalate	0.97	1.3	ND(0.26)	ND(2.0)
Methane	27	50	17	0.25

WELL AP-6527
Top of PVC UNKNOWN
Total Well Depth (ft) 180.35

	AUG 11	NOV 12
Groundwater Elevation (feet)	UNKNOWN	UNKNOWN
Benzene	1.2	1.5
cis-1,2-Dichloroethene	ND(1.0)	ND(2)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(0.4)
1,1,2-Trichloroethane	ND(1.0)	ND(0.4)
Trichloroethene	ND(1.0)	ND(2)
Vinyl Chloride	ND(1.5)	ND(0.8)
bis (2-ethylhexyl)phthalate	ND(300)	**13**
Methane	1.9	10

WELL AP-6530
Top of PVC 450.06
Total Well Depth (ft) 142.2

	OCT 10	JULY 11	OCT 11	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	432.96	435.43	434.08	434.26	434.84	434.24	434.81
Benzene	0.69	**5.7**	4.2	2.5	**5.8**	**5.0**	3.2
cis-1,2-Dichloroethene	ND(1.0)	1.6	0.90	0.54	1.8	1.6	0.42
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	0.89
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	ND(1.0)	ND(1.5)	ND(1.5)	ND(0.8)	0.31	0.27	ND(0.4)
bis (2-ethylhexyl)phthalate	ND(52)	0.43	0.50	1.1	1.3	1.1	**27**
Methane	290	2,100	1,400	570	2,800	3,900	530

WELL AP-6534
Top of PVC 450.15
Total Well Depth (ft) 198.4

	OCT 10	JULY 11
Groundwater Elevation (feet)	433.42	435.57
Benzene	1.9	1.2
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.5)
bis (2-ethylhexyl)phthalate	ND (5.2)	0.61
Methane	140	150

WELL AP-6535
Top of PVC 448.09
Total Well Depth (ft) 93.1

	OCT 10	JULY 11	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	431.7	435.09	434.04	434.70	434.10	434.39
Benzene	3.6	3.4	3.1	3.3	2.1	3.3
cis-1,2-Dichloroethene	33	34	31	33	22	34
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Trichloroethene	0.65	0.57	0.58	0.95	0.33	0.73
Vinyl Chloride	0.9	1.1	1.0	0.86	0.66	1.1
bis (2-ethylhexyl)phthalate	1.4	0.49	1.6	1.1	0.95	2.3
Methane	1,000	810	1,600	1,100	2,100	1,800

WELL AP-6532
Top of PVC 451.38
Total Well Depth (ft) 177.2

	JUL 97	DEC 98	MAR 99	JUN 99	AUG 99	MAR 00	AUG 00	MAR 01	SEP 01	JUN 02	SEP 02
Groundwater Elevation (feet)	*	428.08	426.35	428.11	428.73	426.98	428.83	432.57	433.02	432.83	434.43
Benzene	2.00	1.79	2.00	1.77	1.52	1.81	1.80	2.40	2.00	1.64	2.17
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
bis (2-ethylhexyl)phthalate	**6.00**	ND(12)	**8.90**	NA	**29.1**	**75.0**	ND(10)	ND(5.1)	ND(5.7)	ND(22)	ND(23)
Methane											

	MAY 03	SEP 03	JUN 04	NOV 04	MAY 05	OCT 05	JUNE 06	OCT 06	MAY 07	OCT 07	MAY 08
Groundwater Elevation (feet)	433.92	436.37	433.23	432.25	434.13	433.32	434.58	434.11	432.51	433.12	435.06
Benzene	1.75	2.00	**8.09**	0.86	**8.43**	**8.30**	**9.62**	**8.80**	**9.35**	**7.96**	**9.60**
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	3.82	ND(1.0)	3.82	3.74	3.74	4.10	3.21	2.74	3.30
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(1.0)	ND(1.0)	ND(0.5)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.31	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
bis (2-ethylhexyl)phthalate	**6.80**	ND(17)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.6)	0.47	ND(11.2)	ND(10.6)	0.82
Methane											

	SEPT 08	JUNE 09	NOV 09	MAY 10	OCT 10	JULY 11	OCT 11	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	435.49	434.68	434.23	433.47	433.42	435.67	434.38	434.47	435.02	434.47	435.03
Benzene	**10.0**	3.40	1.00	**11.0**	**12.0**	**11.0**	**10.0**	2.4	**11.0**	**9.2**	**13**
cis-1,2-Dichloroethene	3.70	11.0	0.62	3.4	3.4	3.3	2.8	0.66	2.3	2.4	2.4
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Trichloroethene	0.95	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.5)	ND(1.5)	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
bis (2-ethylhexyl)phthalate	ND(15)	ND(15)	**7.8**	ND(9.6)	1.4	0.74	0.33	1.2	1.1	1.6	ND(2.9)
Methane			1,400	5,300	5,200	5,300	5,300	1,500	2,200	5,900	4,300

* NO ELEVATION GIVEN FOR TOP OF CASING.

WELL AP-8063
Top of PVC 451.36
Total Well Depth (ft) 120.55

	SEP 01	JUN 02	OCT 02	JUN 03	SEP 03	JUN 04	NOV 04	MAY 05	OCT 05	JUNE 06	OCT 06	MAY 07	OCT 07
Groundwater Elevation (feet)	434.34	NS	435.03	434.21	436.79	434.56	433.17	435.85	434.59	434.65	434.44	433.75	434.36
Benzene	4.50	NS	3.39	3.44	3.46	3.01	0.73	2.65	3.46	3.56	2.80	2.92	2.65
cis-1,2-Dichloroethene	**72.0**	NS	43.5	**74.8**	**70.5**	69.6	5.10	46.6	**87.7**	**82.5**	**82.0**	58.8	57.1
1,1,2,2-Tetrachloroethane	**51.0**	NS	**49.6**	**33.6**	**77.4**	**9.60**	0.94	**11.3**	1.59	3.06	1.60	1.26	2.95
1,1,2-Trichloroethane	0.85	NS	0.84	0.64	0.97	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(10)	ND(1.0)	ND(1.0)
Trichloroethene	**24.0**	NS	**16.5**	**22.5**	**28.2**	**17.3**	1.23	**16.7**	**21.6**	**22.9**	**18.0**	**22.0**	**21.0**
Vinyl Chloride	**2.10**	NS	1.10	1.48	1.91	1.58	ND(1.0)	1.30	1.64	**2.22**	ND(10)	1.76	**2.08**
bis (2-ethylhexyl)phthalate	ND(5.3)	NS	ND(20)	**41.0**	ND(16)	ND(10)	ND(10)	ND(10)	**11.0**	**7.40**	ND(17)	ND(10.5)	ND(10.9)
Methane													

	MAY 08	SEPT 08	JUNE 09	NOV 09	MAY 10	OCT 10	JULY 11	OCT 11	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	435.18	435.77	434.68	434.36	433.64	433.59	435.91	434.60	434.70	435.60	434.65	435.34
Benzene	2.60	2.90	2.30	0.15	2.80	3.0	2.6	2.7	2.5	2.5	2.0	2.6
cis-1,2-Dichloroethene	**94.0**	**91.0**	**75.0**	6.00	**110**	**110**	**87**	**91**	**110**	**93**	**83**	**120**
1,1,2,2-Tetrachloroethane	**11.0**	**11.0**	**20.0**	0.99	**29.0**	**37.0**	**61**	**49**	**43**	**46**	**43**	**39**
1,1,2-Trichloroethane	0.36	0.50	0.28	ND(1.0)	0.66	0.83	0.89	0.94	0.92	0.95	1	0.79
Trichloroethene	**17.0**	**16.0**	**15.0**	1.10	**21.0**	**24.0**	**23.0**	**24.0**	**26.0**	**25.0**	**21.0**	**29**
Vinyl Chloride	1.50	1.40	1.10	ND(1.0)	0.76	1.2	1.3	1.2	1.2	0.98	0.82	1.3
bis (2-ethylhexyl)phthalate	0.39	ND(15)	ND(15)	3.8	1.1	ND(5.2)	0.77	**15**	1.2	2.0	2.5	ND(2.9)
Methane				440	3,000	1,300	2,900	3,400	4,600	2,800	4,700	3,100

NS = NO SAMPLE COLLECTED BECAUSE WELL WAS FROZEN DURING SAMPLING EVENT.

WELL AP-6136
Top of PVC 454.14
Total Well Depth (ft) 96.1

	JUL 97	DEC 98	MAR 99	JUN 99	AUG 99	MAR 00	AUG 00	MAR 01	SEP 01	JUN 02	OCT 02
Groundwater Elevation (feet)	428.08	428.93	427.84	427.84	429.11	428.13	429.43	434.01	434.71	435.59	435.99
Benzene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(0.5)	0.42
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)
bis (2-ethylhexyl)phthalate	**22 .0**	**24.8**	**13.0**	NA	**32.3**	**36.8**	ND(10)	**33.0**	ND(5.0)	ND(22)	ND(22)
Methane											

	MAY 03	SEP 03	JUN 04	OCT 04	MAY 05	OCT 05	JUNE 06	OCT 06	MAY 07	OCT 07	MAY 08
Groundwater Elevation (feet)	434.50	436.98	436.00	429.65	435.61	435.04	435.07	434.68	434.11	434.45	435.54
Benzene	0.28	0.26	0.34	0.43	ND(0.4)	ND(0.4)	0.35	0.32	0.26	ND(0.4)	0.19
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.091
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(0.5)	ND(0.5)	ND(0.5)	0.55	ND(0.5)	ND(1.0)	ND(0.5)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
bis (2-ethylhexyl)phthalate	5.30	ND(17)	4.20	**13.0**	**8.90**	ND(10)	ND(9.9)	0.43	ND(10.5)	ND (10.9)	2.40
Methane											

	SEPT 08	JUNE 09	NOV 09	MAY 10	OCT 10	JULY 11	OCT 11	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	436.29	434.84	434.83	433.90	433.91	436.61	434.82	434.61	436.02	434.02	435.68
Benzene	0.27	0.43	0.35	0.29	0.35	ND(1.0)	0.29	0.21	0.16	0.21	0.53
cis-1,2-Dichloroethene	0.10	ND(1.0)	0.11	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.5)	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
bis (2-ethylhexyl)phthalate	ND(15)	ND(15)	1.2	2.6	2.6	0.32	0.32	1.1	NA	0.96	6.8
Methane			110	51	28	140	130	160	160	210	130

WELL AP-8061
Top of PVC 444.30
Total Well Depth (ft) 25.2

	SEP 01	JUN 02	SEP 02	MAY 03	SEP 03	JUN 04	OCT 04	MAY 05	OCT 05	JUNE 06	OCT 06	MAY 07	OCT 07
Groundwater Elevation (feet)	434.57	435.44	435.84	434.33	436.61	435.76	433.29	435.53	434.88	434.94	434.48	433.91	434.28
Benzene	**5.00**	2.46	4.84	3.39	**5.80**	3.34	**5.77**	3.09	**5.07**	**5.74**	**5.50**	**5.08**	**5.00**
cis-1,2-Dichloroethene	31.0	15.6	26.5	20.6	28.8	22.9	22.4	17.7	18.9	24.3	20.0	20.9	16.0
1,1,2,2-Tetrachloroethane	ND(2.0)	1.50	3.85	2.92	3.05	1.05	ND(0.5)	ND(0.5)	ND(0.5)	0.24	ND(1.0)	ND(0.5)	ND(0.5)
1,1,2-Trichloroethane	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	**11.0**	**7.86**	**12.9**	**11.0**	**13.0**	**12.3**	**12.3**	**8.74**	**9.20**	**12.7**	**9.60**	**12.7**	**8.11**
Vinyl Chloride	ND(2.0)	ND(1.0)	ND(1.0)	0.33	0.47	0.53	0.65	0.43	0.59	1.25	0.49	ND(1.0)	0.66
bis (2-ethylhexyl)phthalate	ND(5.0)	ND(22)	ND(23)	**6.00**	ND(17)	5.00	ND(10)	ND(10)	ND(11)	ND(9.5)	ND(16)	ND(10.4)	ND(10.5)
Methane													

	MAY 08	SEPT 08	JUNE 09	NOV 09	MAY 10	OCT 10	JULY 11	OCT 11	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	435.28	436.10	434.63	434.57	433.73	433.71	436.39	434.83	434.45	435.78	434.13	435.53
Benzene	4.40	**5.5**	4.40	**5.2**	4.7	**5.8**	**5.3**	4.8	4.3	2.9	3.9	3.9
cis-1,2-Dichloroethene	17.0	20.0	18.0	14.0	10	13	11	12	9	8.6	7.3	13
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.9	ND(1.0)	ND(1.0)	ND(1.0)	0.71	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Trichloroethene	**6.8**	**7.6**	**8.9**	**6.6**	4.8	**6.2**	**5.8**	**5.9**	4.6	4.4	3.8	**7.8**
Vinyl Chloride	0.40	0.56	ND(1.0)	0.30	ND(1.0)	0.24	ND(1.5)	ND(1.5)	ND(0.8)	0.13	0.15	ND(0.4)
bis (2-ethylhexyl)phthalate	4.00	ND(15)	ND(15)	ND(9.7)	ND(15)	1.3	0.3	ND(5.1)	0.92	0.79	0.81	ND(1.9)
Methane				960	280	610	460	670	880	260	600	560

WELL AP-6138
Top of PVC 444.92
Total Well Depth (ft) 85.91

	JUL 97	DEC 98	MAR 99	JUN 99	AUG 99	MAR 00	AUG 00	MAR 01	SEP 01	JUN 02	SEP 02
Groundwater Elevation (feet)	428.10	*	427.62	428.70	428.45	427.91	429.10	NS	437.39	438.24	438.68
Benzene	3.00	3.07	3.00	3.28	2.83	3.53	2.82	NS	2.00	3.29	2.86
cis-1,2-Dichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	NS	ND(2.0)	ND(0.5)	0.36
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	NS	ND(2.0)	ND(1.0)	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	NS	ND(2.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	NS	ND(2.0)	ND(1.0)	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	NS	ND(2.0)	ND(1.0)	ND(1.0)
bis (2-ethylhexyl)phthalate	1.00	**35.5**	3.10	NA	**19.1**	ND(10)	ND(10)	NS	ND(5.3)	ND(22)	ND(22)
Methane											

	MAY 03	SEP 03	JUN 04	NOV 04	MAY 05	OCT 05	JUNE 06	OCT 06	MAY 07	OCT 07	MAY 08
Groundwater Elevation (feet)	434.37	NE	435.96	433.52	435.77	435.15	435.02	434.62	434.17	434.48	435.19
Benzene	3.15	3.04	4.14	4.24	3.90	3.66	3.80	3.70	3.71	2.22	3.10
cis-1,2-Dichloroethene	ND(1.0)	0.59	0.45	0.44	0.57	ND(1.0)	0.34	0.36	ND(1.0)	0.96	0.36
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(1.0)	ND(0.5)	0.95	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.47	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.42	ND(1.0)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
bis (2-ethylhexyl)phthalate	5.6	ND(16)	ND(9.4)	ND(10)	ND(11)	ND(11)	ND(10)	**11.0**	ND (11.5)	ND(10.8)	2.10
Methane											

	SEPT 08	JUNE 09	NOV 09	MAY 10	OCT 10	JULY 11	OCT 11	NOV 12	JUNE 13	SEPT 13	OCT 14
Groundwater Elevation (feet)	436.12	434.65	434.56	433.72	433.68	436.39	434.81	434.53	435.75	434.14	435.50
Benzene	3.30	2.90	3.30	3.40	4.70	2.9	3.0	2.8	2.8	2.23	2.5
cis-1,2-Dichloroethene	0.41	0.24	0.44	0.55	0.52	0.37	0.36	0.39	0.39	0.25	0.38
1,1,2,2-Tetrachloroethane	ND(1.0)	ND(1.0)	ND(1.0)	1.5	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	0.75
1,1,2-Trichloroethane	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Trichloroethene	ND(1.0)	ND(1.0)	ND(1.0)	0.33	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.5)	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
bis (2-ethylhexyl)phthalate	ND(15)	ND(15)	ND(9.6)	ND(9.6)	2.4	ND(4.8)	0.67	0.82	0.76	ND(0.2)	ND(2.9)
Methane			160	56	110	89	88	170	91	160	160

* MEASUREMENT NOT TAKEN.
NS = WELL NOT SAMPLED, WELL STRUCTURE COMPR0MISED.
NE = REPLACE TOP 10 FEET OF PVC WITH STAINLESS STEEL CASING, THEREFORE CHANGING TOC ELEVATION.

WELL AP-5997
Top of PVC Unknown
Total Well Depth (ft) 25.8

	JULY 11
Groundwater Elevation (feet)	UNKNOWN
Benzene	ND(1.0)
cis-1,2-Dichloroethene	ND(1.0)
1,1,2,2-Tetrachloroethane	ND(1.0)
1,1,2-Trichloroethane	ND(1.0)
Trichloroethene	ND(1.0)
Vinyl Chloride	ND(1.0)
bis (2-ethylhexyl)phthalate	0.35
Methane	7.4

LEGEND

AP-6138 — MONITORING WELL
PRIMARY ROAD
SECONDARY ROAD
BOUNDARY
DRAINAGE
TRAIL
ND — INDICATES THAT THE ANALYTE WAS NOT DETECTED, THE PRACTICAL QUANITATION LIMIT IS STATED IN PARENTHESES.

RAOs IN µg/L

5	Benzene
70	cis-1,2-Dichloroethene
5.2	1,1,2,2-Tetrachloroethane
5	1,1,2-Trichloroethane
5	Trichloroethene
2	Vinyl Chloride
6	bis (2-ethylhexyl)phthalate
NA	Methane

KEY:

MONITORING WELL

WELL AP-8063
TOP OF PVC 451.13
Total Well Depth (ft) 121.3

	SEP 01	JUN 02	OCT 02	JUN 03	SEP 03	JUN 04
Groundwater Elevation (feet)	434.34	NS	435.03	434.21	436.79	436.79
Benzene	4.5	NS	3.39	3.44	3.46	3.01
cis-1,2-Dichloroethene	**72**	NS	43.5	**74.8**	**70.5**	69.6
1,1,2,2-Tetrachloroethane	**51**	NS	**49.6**	**33.6**	**77.4**	**9.60**
1,1,2-Trichloroethane	0.85 J	NS	0.84 J	0.64 J	0.97 J	ND(1.0)
Trichloroethene	**24**	NS	**16.5**	**22.5**	**28.2**	**17.3**
Vinyl Chloride	**2.1**	NS	1.1	1.48	1.91 J	1.58
bis (2-ethylhexyl)phthalate	ND (5.3)	NS	ND(20)	**41 B**	ND(16)	ND(10)

CONCENTRATIONS EXCEEDING REMEDIAL ACTION GOALS SHOWN IN BOLD
CONCENTRATIONS IN MICROGRAMS PER LITER (µg/L)

NS = NO SAMPLE COLLECTED BECAUSE WELL WAS FROZEN DURING SAMPLING EVENT.

FAIRBANKS ENVIRONMENTAL SERVICES
3538 INTERNATIONAL STREET
FAIRBANKS, ALASKA

ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

Concentrations of Analytes in Groundwater at the Landfill Source Area

2014 Annual Sampling Report
Operable Unit 4
Fort Wainwright, Alaska

CONTRACT: W911KB-12-D-0001
FIGURE: 3-3
DATE: 6/15

OU4 - Landfill
Groundwater Monitoring Results

Well/Constituent	Unit	Cleanup Goal	Jul-97	Dec-98	Mar-99	Jun-99	Aug-99	Mar-00	Aug-00	Mar-01	Sep-01	Jun-02	Oct-02	May-03	Sep-03	Jun-04	Oct/Nov-04	May-05	Oct-05	Jun-06	Oct-06	May-07	Oct-07	May-08	Sep-08	Jun-09	Nov-09	May-10	Oct-10	Jul-11	Oct-11	Nov-12	Jun-13	Sep-13	Oct-14
AP-5588	Zone:	Shallow		Location:	Downgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	1,700	2,020	2,400	1,920	1,570	2,130	2,180	2,000	1,300	934	1,260	1,990	1,820	2,590	2,990	1,600	2,820	2,870	2,600	378	2,840	1,200	1,600	2,300	2,600	2,800	2,400	890	950	830	940	980	1,300
1,1,2-Trichloroethane	µg/L	5	8.0	10.2	11.0	9.92	9.41	10.1	9.71	10.0	7.7	5.46	7.1	9.52	9.53	11.8	13.2	7.58	12.4	13.8	13	13.9	10.4	6.0	7.4	9.2	ND(50)	73	ND(50)	5.2	5.7	6.2	4.7	4.2	5.4
Benzene	µg/L	5	2.00	2.27	2.00	2.42	3.07	2.26	2.29	2.50	2.10	1.64	2.37	1.93	ND(4.0)	2.25	2.09	2.49	2.42	2.52	2.10	1.12	0.34	2.60	2.30	2.20	ND(50)	2.20	ND(50)	2.6	1.9	2.0	1.4	1.5	0.76
bis(2-Ethylhexylphthalate)	µg/L	6	ND(11)	ND(11)	0.60	NA	ND(11)	ND(10)	ND(11)	3.40	ND(5.1)	ND(21)	ND(20)	7.30	ND(16)	ND(9.3)	ND(10)	ND(10)	ND(10)	ND(9.7)	ND(17)	ND(3.23)	ND(11.8)	7.20	0.74	ND(0.15)	ND(9.6)	0.63	ND(4.8)	0.53	ND(5)	1.1	0.69	ND(0.27)	ND(3)
cis 1,2-Dichloroethene	µg/L	70	160	170	190	184	176	173	168	160	220	117	127	162	121	183	168	133	160	169	200	ND(25)	148	150	150	170	190	180	190	140	130	120	110	110	120
Trichloroethene	µg/L	5	280	196	320	243	252	271	257	440	240	168	193	248	203	314	295	205	279	305	320	31.0	290	170	180	310	310	260	360	170	190	170	130	140	190
Vinyl Chloride	µg/L	2	ND(1.0)	ND(1.0)	ND(1.0)	1.11	1.37	1.17	1.31	1.10	1.30	ND(1.0)	1.33	0.88	ND(10)	1.21	1.45	1.49	1.52	2.42	ND(10)	1.42	1.06	1.30	1.10	1.20	ND(50)	0.51	ND(50)	1.5	1.1	ND(0.4)	0.51	0.96	0.4
AP-8061	Zone:	Shallow		Location:	Downgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	NA	NA	NA	NA	NA	NA	NA	NA	ND(2.0)	1.5	3.85	2.92	3.05	1.05	ND(0.5)	ND(0.5)	ND(0.5)	0.24	ND(1.0)	ND(0.5)	ND(0.5)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.9	ND(1.0)	ND(1.0)	ND(1.0)	0.71	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)
Benzene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	5.0	2.46	4.84	3.39	5.80	3.34	5.77	3.09	5.07	5.74	5.50	5.08	5.0	4.4	5.5	4.4	5.2	4.7	5.8	5.3	4.8	4.3	2.9	3.9	3.9
bis(2-Ethylhexylphthalate)	µg/L	6	NA	NA	NA	NA	NA	NA	NA	NA	ND(5.0)	ND(22)	ND(23)	6.0	ND(17)	5.0	ND(10)	ND(10)	ND(11)	ND(9.5)	ND(16)	ND(10.4)	ND(10.5)	4.0	ND(15)	ND(15)	ND(9.7)	ND(15)	1.3	0.3	ND(5.1)	0.92	0.79	0.81	ND(1.9)
cis 1,2-Dichloroethene	µg/L	70	NA	NA	NA	NA	NA	NA	NA	NA	31	15.6	26.5	20.6	28.8	22.9	22.4	17.7	18.9	24.3	20	20.9	16	17	20	18	14	10	13	11	12	9	8.6	7.3	13
Trichloroethene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	11	7.86	12.9	11	13	12.3	12.3	8.74	9.2	12.7	9.6	12.7	8.11	6.8	7.6	8.9	6.6	4.8	6.2	5.8	5.9	4.6	4.4	3.8	7.8
Vinyl Chloride	µg/L	2	NA	NA	NA	NA	NA	NA	NA	NA	ND(2.0)	ND(1.0)	ND(1.0)	0.33	0.47	0.53	0.65	0.43	0.59	1.25	0.49	ND(1.0)	0.66	0.40	0.56	ND(1.0)	0.30	ND(1.0)	0.24	ND(1.5)	ND(1.5)	ND(0.8)	0.13	0.15	ND(0.4)
AP-10257	Zone:	Shallow		Location:	Upgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Benzene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14	3.4	17	6.6
bis(2-Ethylhexylphthalate)	µg/L	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1	1.1	1.1	ND(2.0)
cis 1,2-Dichloroethene	µg/L	70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.9	1.6	3.9	2.0
Trichloroethene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	µg/L	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
AP-10258	Zone:	Shallow		Location:	Upgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Benzene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.2)	0.4	2.7	5.7
bis(2-Ethylhexylphthalate)	µg/L	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.98	0.76	ND(0.26)	ND(2.9)
cis 1,2-Dichloroethene	µg/L	70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.45	0.39	1.7	2.5
Trichloroethene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
Vinyl Chloride	µg/L	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
AP-10259	Zone:	Shallow		Location:	Upgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Benzene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.72	0.7	0.18	ND(0.4)
bis(2-Ethylhexylphthalate)	µg/L	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.97	1.3	ND(0.26)	ND(2.0)
cis 1,2-Dichloroethene	µg/L	70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.45	0.37	ND(0.2)	ND(0.4)
Trichloroethene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	µg/L	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
FWLF-4	Zone:	Shallow		Location:	Upgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	NA	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(1.0)	ND(0.5)	ND(0.5)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	µg/L	5	NA	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Benzene	µg/L	5	NA	1.97	2.00	1.67	1.58	1.53	1.31	1.40	1.40	0.91	1.26	1.32	1.34	1.43	1.80	1.87	1.57	1.49	1.50	1.27	ND(0.4)	1.10	0.90	1.2	1.4	1.2	1.1	0.94	0.84	0.51	0.52	0.4	1.2
bis(2-Ethylhexylphthalate)	µg/L	6	NA	15.3	2.20	NA	ND(11)	ND(10)	ND(10)	ND(5.0)	4.30	ND(22)	ND(22)	6.7	ND(16)	ND(9.3)	ND(10)	ND(10)	ND(10)	ND(9.7)	ND(16)	ND(10.8)	ND(11.1)	1.80	ND(15)	ND(15)	ND(9.6)	5.4	ND(4.8)	0.49	0.37	1.1	0.66	0.8	13
cis 1,2-Dichloroethene	µg/L	70	NA	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.41	0.36	0.41	0.36	0.44	0.50	ND(1.0)	0.45	0.52	ND(1.0)	0.95	0.41	0.38	0.40	0.47	ND(1.0)	0.50	0.36	0.37	0.31	0.26	0.19	0.47
Trichloroethene	µg/L	5	NA	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	µg/L	2	NA	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.5)	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
AP-5589	Zone:	Intermediate		Location:	Downgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	ND(1.0)	ND(1.0)	2.00	1.16	ND(1.0)	ND(1.0)	ND(1.0)	1.30	ND(5.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.40	2.08	0.67	8.42	6.34	5.60	24.5	ND(0.5)	0.23	0.22	0.63	5.6	4.9	ND(1.0)	ND(1.0)	ND(1.0)	0.31	ND(0.4)	ND(0.4)	1.5
1,1,2-Trichloroethane	µg/L	5	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.094	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Benzene	µg/L	5	4.00	4.03	4.00	4.01	4.28	3.87	3.86	4.10	4.10	3.54	3.32	3.47	4.25	3.95	3.38	3.58	3.43	3.98	3.40	3.20	2.54	3.30	3.60	3.00	3.40	2.80	3.50	3.3	3.1	2.6	3.0	2.4	3.3
bis(2-Ethylhexylphthalate)	µg/L	6	1.00	ND(11)	9.3	NA	ND(11)	ND(10)	ND(10)	2.80	ND(5.0)	ND(20)	ND(20)	R	ND(16)	ND(9.3)	ND(10)	ND(10)	ND(10)	ND(10)	ND(16)	ND(10.4)	ND(10.7)	4.00	ND(15)	ND(15)	ND(9.6)	ND(9.6)	1.6	0.79	ND(5.2)	0.97	23	ND(0.2)	ND(0.3)
cis 1,2-Dichloroethene	µg/L	70	13.0	9.83	9.00	10.7	11.1	9.44	8.58	9.00	14.0	7.37	8.19	8.39	9.28	10.2	11.0	10.9	10.5	12.0	14.0	11.1	13.4	14.0	15.0	13.0	14.0	13.0	17	18	19	16	16	14	16
Trichloroethene	µg/L	5	4.00	3.47	4.00	3.73	3.96	3.74	3.52	3.90	4.50	3.05	3.49	3.01	3.19	3.42	3.95	3.01	3.33	3.84	3.90	5.04	3.83	3.10	3.80	3.90	5.10	4.10	4.90	4.4	4.4	4.5	4.5	3.6	4.9
Vinyl Chloride	µg/L	2	ND(1.0)	1.19	ND(1.0)	1.24	1.44	1.50	1.40	1.70	2.60	ND(1.0)	1.41	1.33	1.07	1.64	2.10	1.39	1.55	2.64	1.20	1.32	1.61	1.10	1.10	ND(1.0)	1.00	ND(1.0)	0.97	1.2	0.85	0.66	0.60	0.71	0.88
AP-6136	Zone:	Intermediate		Location:	Downgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.5)	ND(0.5)	ND(0.5)	0.55	ND(0.5)	ND(1.0)	ND(0.5)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	µg/L	5	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.2)	ND(0.4)
Benzene	µg/L	5	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(0.5)	0.42	0.28	0.26	0.34	0.43	ND(0.4)	ND(0.4)	0.35	0.32	0.26	ND(0.4)	0.19	0.27	0.43	0.35	0.29	0.35	ND(1.0)	0.29	0.21	0.16	0.21	0.53
bis(2-Ethylhexylphthalate)	µg/L	6	22.0	24.8	13.0	NA	32.3	36.8	ND(10)	33.0	ND(0.5)	ND(22)	ND(22)	5.30	ND(17)	4.20	13.0	8.90	ND(10)	ND(9.9)	0.43	ND(10.5)	ND(10.9)	2.40	ND(15)	ND(15)	1.2	2.6	2.6	0.32	0.32	1.1	NA	0.96	6.8
cis 1,2-Dichloroethene	µg/L	70	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.091	0.10	ND(1.0)	0.11	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
Trichloroethene	µg/L	5	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)
Vinyl Chloride	µg/L	2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.0)	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.5)	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
AP-6138	Zone:	Intermediate		Location:	Downgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	NS	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(1.0)	ND(0.5)	0.95	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.5	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	0.75
1,1,2-Trichloroethane	µg/L	5	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	NS	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Benzene	µg/L	5	3.00	3.07	3.00	3.28	2.83	3.53	2.82	NS	2.00	3.29	2.86	3.15	3.04	4.14	4.24	3.90	3.66	3.80	3.70	3.71	2.22	3.10	3.30	2.90	3.30	3.40	4.70	2.9	3.0	2.8	2.8	2.23	2.5
bis(2-Ethylhexylphthalate)	µg/L	6	1.00	35.5	3.10	NA	19.1	ND(10)	ND(10)	NS	ND(5.3)	ND(22)	ND(22)	5.6	ND(16)	ND(9.4)	ND(10)	ND(11)	ND(11)	ND(10)	11.0	ND(11.5)	ND(10.8)	2.10	ND(15)	ND(15)	ND(9.6)	ND(9.6)	2.4	ND(4.8)	0.67	0.82	0.76	ND(0.2)	ND(2.9)
cis 1,2-Dichloroethene	µg/L	70	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	NS	ND(2.0)	ND(0.5)	0.36	ND(1.0)	0.59	0.45	0.44	0.57	ND(1.0)	0.34	0.36	ND(1.0)	0.96	0.36	0.41	0.24	0.44	0.55	0.52	0.37	0.36	0.39	0.39	0.25	0.38

OU4 - Landfill
Groundwater Monitoring Results

Well/Constituent	Unit	Cleanup Goal	Jul-97	Dec-98	Mar-99	Jun-99	Aug-99	Mar-00	Aug-00	Mar-01	Sep-01	Jun-02	Oct-02	May-03	Sep-03	Jun-04	Oct/Nov-04	May-05	Oct-05	Jun-06	Oct-06	May-07	Oct-07	May-08	Sep-08	Jun-09	Nov-09	May-10	Oct-10	Jul-11	Oct-11	Nov-12	Jun-13	Sep-13	Oct-14
Trichloroethene	µg/L	5	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	NS	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.47	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.42	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.33	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	µg/L	2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	NS	ND(2.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.5)	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
AP-6530	Zone:	Deep		Location:	Downgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	0.89
1,1,2-Trichloroethane	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Benzene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.69	5.7	4.2	2.5	5.8	5.0	3.2
bis(2-Ethylhexylphthalate)	µg/L	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(52)	0.43	0.50	1.1	1.3	1.1	27
cis 1,2-Dichloroethene	µg/L	70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(1.0)	1.6	0.90	0.54	1.8	1.6	0.42
Trichloroethene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(1.0)	ND(1.0)	ND(1.0)	ND(2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	µg/L	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(1.0)	ND(1.5)	ND(1.5)	ND(0.8)	0.31	0.27	ND(0.4)
AP-6532	Zone:	Deep		Location:	Downgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(1.0)	ND(0.5)	ND(0.5)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	µg/L	5	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Benzene	µg/L	5	2.00	1.79	2.00	1.77	1.52	1.81	1.80	2.40	2.00	1.64	2.17	1.75	2.00	8.09	0.86	8.43	8.30	9.62	8.80	9.35	7.96	9.60	10.0	3.40	1.00	11.0	12.0	11.0	10.0	2.4	11.0	9.2	13
bis(2-Ethylhexylphthalate)	µg/L	6	6.00	ND(12)	8.90	NA	29.1	75.0	ND(10)	ND(5.1)	ND(5.7)	ND(22)	ND(23)	6.80	ND(17)	ND(10)	ND(10)	ND(10)	ND(10)	ND(9.6)	0.47	ND(11.2)	ND(10.6)	0.82	ND(15)	ND(15)	7.8	ND(9.6)	1.4	0.74	0.33	1.2	1.1	1.6	ND(2.9)
cis 1,2-Dichloroethene	µg/L	70	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.82	ND(1.0)	3.82	3.74	3.74	4.10	3.21	2.74	3.30	3.70	11.0	0.62	3.4	3.4	3.3	2.8	0.66	2.3	2.4	2.4
Trichloroethene	µg/L	5	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.95	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.4)
Vinyl Chloride	µg/L	2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.31	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.5)	ND(1.5)	ND(0.8)	ND(0.4)	ND(0.4)	ND(0.4)
AP-6535	Zone:	Deep		Location:	Downgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(1.0)	ND(1.0)	NS	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
1,1,2-Trichloroethane	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND(1.0)	ND(1.0)	NS	ND(0.4)	ND(0.4)	ND(0.4)	ND(0.4)
Benzene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.6	3.4	NS	3.1	3.3	2.1	3.3
bis(2-Ethylhexylphthalate)	µg/L	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4	0.49	NS	1.6	1.1	0.95	2.3
cis 1,2-Dichloroethene	µg/L	70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33	34	NS	31	33	22	34
Trichloroethene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.65	0.57	NS	0.58	0.95	0.33	0.73
Vinyl Chloride	µg/L	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.9	1.1	NS	1.0	0.86	0.66	1.1
AP-8063	Zone:	Deep		Location:	Downgradient																														
1,1,2,2-Tetrachloroethane	µg/L	5.2	NA	NA	NA	NA	NA	NA	NA	NA	51.0	NS	49.6	33.6	77.4	9.60	0.94	11.3	1.59	3.06	1.60	1.26	2.95	11.0	11.0	20.0	0.99	29.0	37.0	61	49	43	46	43	39
1,1,2-Trichloroethane	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	0.85	NS	0.84	0.64	0.97	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	0.36	0.50	0.28	ND(1.0)	0.66	0.83	0.89	0.94	0.92	0.95	1.0	0.79
Benzene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	4.50	NS	3.39	3.44	3.46	3.01	0.73	2.65	3.46	3.56	2.80	2.92	2.65	2.60	2.90	2.30	0.15	2.80	3.0	2.6	2.7	2.5	2.5	2.0	2.6
bis(2-Ethylhexylphthalate)	µg/L	6	NA	NA	NA	NA	NA	NA	NA	NA	ND(5.3)	NS	ND(20)	41.0	ND(16)	ND(10)	ND(10)	ND(10)	11.0	7.4	ND(17)	ND(10.5)	ND(10.9)	0.39	ND(15)	ND(15)	3.8	1.1	ND(5.2)	0.77	15	1.2	2.0	2.5	ND(2.9)
cis 1,2-Dichloroethene	µg/L	70	NA	NA	NA	NA	NA	NA	NA	NA	72.0	NS	43.5	74.8	70.5	69.6	5.10	46.6	87.7	82.5	82.0	58.8	57.1	94.0	91.0	75.0	6.00	110	110	87	91	110	93	83	120
Trichloroethene	µg/L	5	NA	NA	NA	NA	NA	NA	NA	NA	24.0	NS	16.5	22.5	28.2	17.3	1.23	16.7	21.6	22.9	18.0	22.0	21.0	17.0	16.0	15.0	1.10	21.0	24.0	23.0	24.0	26.0	25.0	21.0	29
Vinyl Chloride	µg/L	2	NA	NA	NA	NA	NA	NA	NA	NA	2.10	NS	1.10	1.48	1.91	1.58	ND(1.0)	1.30	1.64	2.22	ND(10)	1.76	2.08	1.50	1.40	1.10	ND(1.0)	0.76	1.2	1.3	1.2	1.2	0.98	0.82	1.3

Notes:

NA not analyzed
ND not detected (detection limit in brackets)
NS not sampled
R result rejected
µg/L = micrograms per liter
result exceeds cleanup goal

Summary of Mann-Kendall Test Results [1,2]

Well	Constituent	Sample size (n)	Test Statistic (S)	Critical Value ($Z_{0.90}$) or Test Probability (ρ)	Conclusion	Notes
AP-5588						**Shallow zone downgradient well**
	1,1,2,2-tetrachloroethane	32	-72	-1.16	No trend	All results above the SCL
	1,1,2-trichloroethane	32	-79	-1.26	No trend	19 of 32 results above the SCL
	trichloroethene	32	-90	-1.46	Downward trend	All results above the SCL
	cis 1,2-dichloroethene	32	-149	-2.41	Downward trend	31 of 32 results above the SCL
	vinyl chloride	28	-28	-0.55	No trend	1 of 32 results above the SCL
	benzene	30	-103	-1.86	Downward trend	All results below the SCL
	bis(2-ethylhexyl)phthalate	31		Not evaluated		2 of 31 results above the SCL, 22 results ND
AP-8061						**Shallow zone downgradient well**
	1,1,2,2-tetrachloroethane	25		Not evaluated		All results below the SCL, 17 of 25 results ND
	1,1,2-trichloroethane	25		Not evaluated		All results ND
	trichloroethene	25	-187	-4.41	Downward trend	21 of 25 results above the SCL
	cis 1,2-dichloroethene	25	-202	-4.72	Downward trend	All results below the SCL
	vinyl chloride	25		Not evaluated		All results below the SCL, 10 of 25 results ND
	benzene	25	-31	-0.71	No trend	12 of 25 results above the SCL
	bis(2-ethylhexyl)phthalate	25		Not evaluated		1 of 25 results above the SCL, 17 of 25 results ND
AP-10257						**Shallow zone upgradient well**
	1,1,2,2-tetrachloroethane	4		Not evaluated		All results ND
	1,1,2-trichloroethane	4		Not evaluated		All results ND
	trichloroethene	4		Not evaluated		All results ND
	cis 1,2-dichloroethene	4		Not evaluated		All results below the SCL
	vinyl chloride	4		Not evaluated		All results ND
	benzene	4		Not evaluated		3 of 4 results above the SCL
	bis(2-ethylhexyl)phthalate	4		Not evaluated		All results below the SCL, 1 of 4 results ND
AP-10258						**Shallow zone upgradient well**
	1,1,2,2-tetrachloroethane	4		Not evaluated		All results ND
	1,1,2-trichloroethane	4		Not evaluated		All results ND
	trichloroethene	4		Not evaluated		All results ND
	cis 1,2-dichloroethene	4		Not evaluated		All results below the SCL
	vinyl chloride	4		Not evaluated		All results ND
	benzene	4		Not evaluated		1 of 4 results above the SCL, 1 result ND
	bis(2-ethylhexyl)phthalate	4		Not evaluated		All results below the SCL, 2 of 4 results ND
AP-10259						**Shallow zone upgradient well**
	1,1,2,2-tetrachloroethane	4		Not evaluated		All results ND
	1,1,2-trichloroethane	4		Not evaluated		All results ND
	trichloroethene	4		Not evaluated		All results ND
	cis 1,2-dichloroethene	4		Not evaluated		All results below the SCL, 2 of 4 results ND
	vinyl chloride	4		Not evaluated		All results ND
	benzene	4		Not evaluated		All results below the SCL, 1 of 4 results ND
	bis(2-ethylhexyl)phthalate	4		Not evaluated		All results below the SCL, 2 of 4 results ND
FWLF-4						**Shallow zone upgradient well**
	1,1,2,2-tetrachloroethane	32		Not evaluated		All results ND
	1,1,2-trichloroethane	32		Not evaluated		All results ND
	trichloroethene	32		Not evaluated		All results ND
	cis 1,2-dichloroethene	32		Not evaluated		All results below the SCL, 12 of 32 results ND
	vinyl chloride	32		Not evaluated		All results ND
	benzene	32	-267	-4.38	Downward trend	All results below the SCL, 1 of 32 results ND
	bis(2-ethylhexyl)phthalate	31		Not evaluated		2 of 31 results above the SCL, 19 of 31 results ND
AP-5589						**Intermediate zone downgradient well**
	1,1,2,2-tetrachloroethane	32		Not evaluated		5 of 32 results above the SCL, 15 results ND
	1,1,2-trichloroethane	32		Not evaluated		All results below the SCL, 31 of 32 results ND
	trichloroethene	32	149	2.45	Upward trend	2 of 32 results above the SCL
	cis 1,2-dichloroethene	32	304	5.07	Upward trend	All results below the SCL
	vinyl chloride	32	-160	-2.63	Downward trend	3 of 32 results above the SCL, 4 results ND
	benzene	32	-294	-4.82	Downward trend	All results below the SCL
	bis(2-ethylhexyl)phthalate	30		Not evaluated		2 of 30 results above the SCL, 23 of 30 results ND
AP-6136						**Intermediate zone downgradient well**
	1,1,2,2-tetrachloroethane	32		Not evaluated		All results below the SCL, 31 of 32 results ND
	1,1,2-trichloroethane	32		Not evaluated		All results ND
	trichloroethene	32		Not evaluated		All results ND
	cis 1,2-dichloroethene	32		Not evaluated		All results below the SCL, 29 of 32 results ND
	vinyl chloride	32		Not evaluated		All results ND
	benzene	32		Not evaluated		All results below the SCL, 13 of 32 results ND
	bis(2-ethylhexyl)phthalate	30		Not evaluated		8 of 30 results above the SCL, 11 results ND
AP-6138						**Intermediate zone downgradient well**
	1,1,2,2-tetrachloroethane	31		Not evaluated		All results below the SCL, 28 of 31 results ND
	1,1,2-trichloroethane	31		Not evaluated		All results ND
	trichloroethene	31		Not evaluated		All results below the SCL, 28 of 31 results ND
	cis 1,2-dichloroethene	31		Not evaluated		All results below the SCL, 11 of 31 results ND
	vinyl chloride	31		Not evaluated		All results below the SCL, 28 of 31 results ND
	benzene	31	-97	-1.65	Downward trend	All results below the SCL
	bis(2-ethylhexyl)phthalate	31		Not evaluated		3 of 31 results above the SCL, 20 results ND

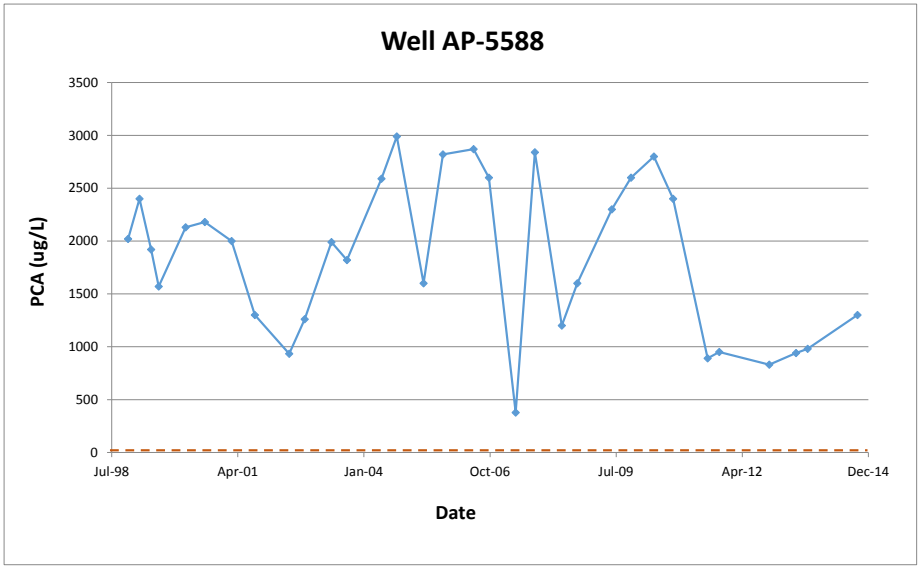
Summary of Mann-Kendall Test Results [1,2]

Well	Constituent	Sample size (n)	Test Statistic (S)	Critical Value ($Z_{0.90}$) or Test Probability (ρ)	Conclusion	Notes
AP-6530						**Deep zone downgradient well**
	1,1,2,2-tetrachloroethane	7		Not evaluated		All results below the SCL, 6 results ND
	1,1,2-trichloroethane	7		Not evaluated		All results ND
	trichloroethene	7		Not evaluated		All results ND
	cis 1,2-dichloroethene	7		Not evaluated		All results below the SCL, 1 result ND
	vinyl chloride	7		Not evaluated		All results below the SCL, 5 results ND
	benzene	7	3	0.386	No trend	3 of 7 results above the SCL
	bis(2-ethylhexyl)phthalate	7		Not evaluated		1 of 7 results above the SCL, 1 result ND
AP-6532						**Deep zone downgradient well**
	1,1,2,2-tetrachloroethane	32		Not evaluated		All results ND
	1,1,2-trichloroethane	32		Not evaluated		All results ND
	trichloroethene	32		Not evaluated		All results below the SCL, 31 of 32 results ND
	cis 1,2-dichloroethene	32		Not evaluated		All results below the SCL, 13 of 32 results ND
	vinyl chloride	32		Not evaluated		All results ND
	benzene	32	270	1.28	Upward Trend	16 of 32 results above the SCL
	bis(2-ethylhexyl)phthalate	31		Not evaluated		5 of 31 results above the SCL, 18 results ND
AP-6535						**Deep zone downgradient well**
	1,1,2,2-tetrachloroethane	6		Not evaluated		All results ND
	1,1,2-trichloroethane	6		Not evaluated		All results ND
	trichloroethene	6	1	0.500	No trend	All results below the SCL
	cis 1,2-dichloroethene	6	-1	0.500	No trend	All results below the SCL
	vinyl chloride	6	-2	0.425	No trend	All results below the SCL
	benzene	6	-8	0.104	No trend	All results below the SCL
	bis(2-ethylhexyl)phthalate	6	3	0.360	No trend	All results below the SCL
AP-8063						**Deep zone downgradient well**
	1,1,2,2-tetrachloroethane	24	44	1.07	No trend	17 of 24 results above the SCL
	1,1,2-trichloroethane	24		Not evaluated		All results below the SCL, 9 of 24 results ND
	trichloroethene	24	54	1.36	Upward trend	22 of 24 results above the SCL
	cis 1,2-dichloroethene	24	124	3.12	Upward trend	17 of 24 results above the SCL
	vinyl chloride	23	-83	-2.28	Downward trend	2 of 24 results above the SCL, 3 of 24 results ND
	benzene	24	-131	-3.36	Downward trend	All results below the SCL
	bis(2-ethylhexyl)phthalate	24		Not evaluated		4 of 24 results above the SCL, 13 results ND

Notes:

1	Mann-Kendall Test using normal approximation for large sample size (n>10); evaluated at the 90% (α=0.1) significance level
2	Mann-Kendall Test using normal approximation for small sample size (n≤10); evaluated at the 90% (α=0.1) significance level
n	sample size
ND	not detected
S	Mann-Kendall statistic
SCL	site cleanup level
Ho	null hypothesis
V(S)	variance of the Mann-Kendall statistic
$Z_{0.90}$	critical value at 90% significance level
ρ	probability, taken from Table B-10 of EM 200-1-16

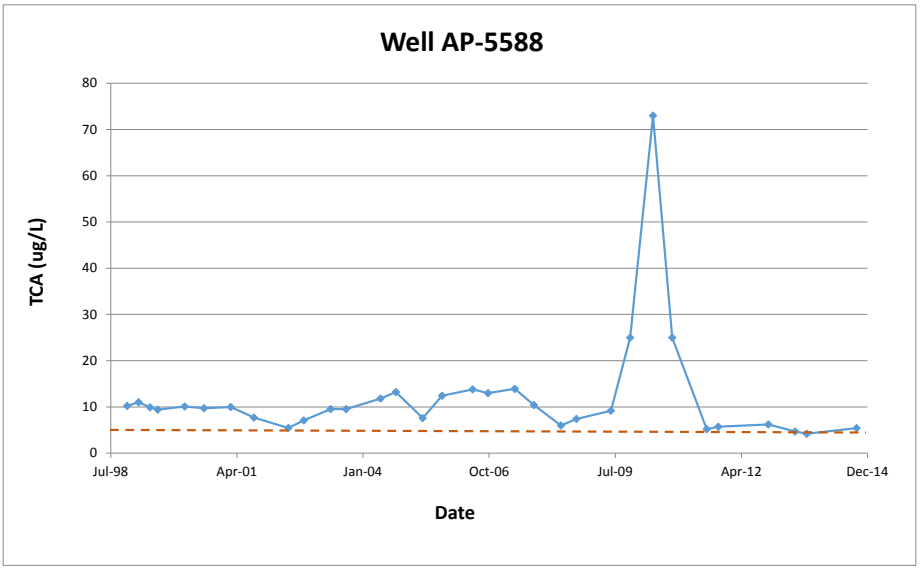
1,1,2,2-Tetrachloroethane Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	32	
S	-72	
g	4	No. tied groups
w	2	No. data points in each tied group
V(S)	3730.667	
z	-1.162425	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho accepted at 90% level of confidence; no trend

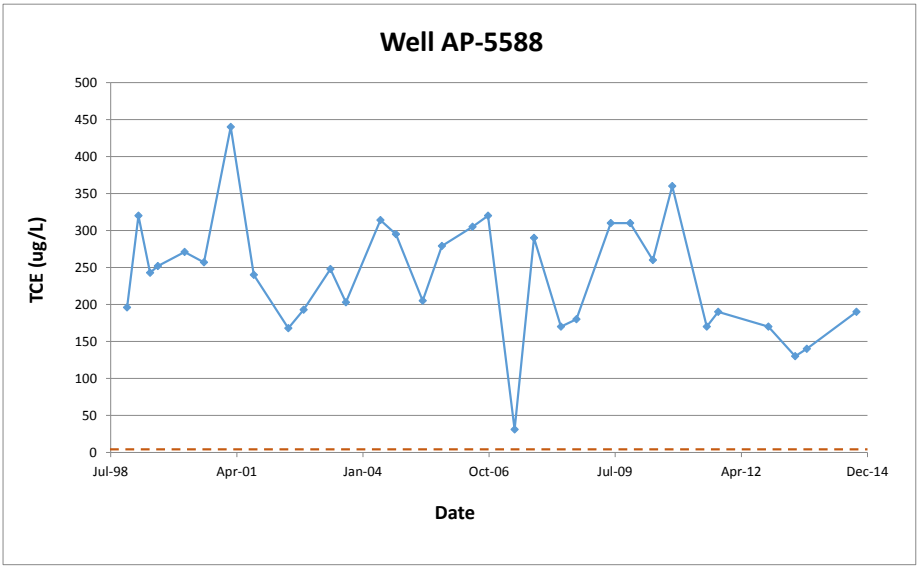
1,1,2-Trichloroethane Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	32	
S	-79	
g	0	No. tied groups
w	2	No. data points in each tied group
V(S)	3802.667	
z	-1.264883	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho accepted at 90% level of confidence; no trend

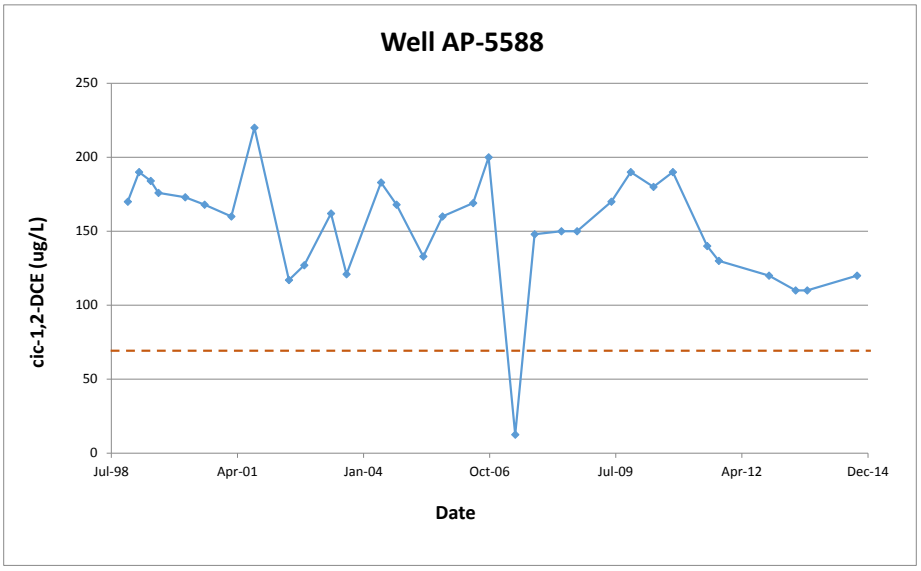
Trichloroethene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	32	
S	-90	
g	5	No. tied groups
w	2	No. data points in each tied group
V(S)	3712.667	
z	-1.460653	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho rejected at 90% level of confidence; downward trend

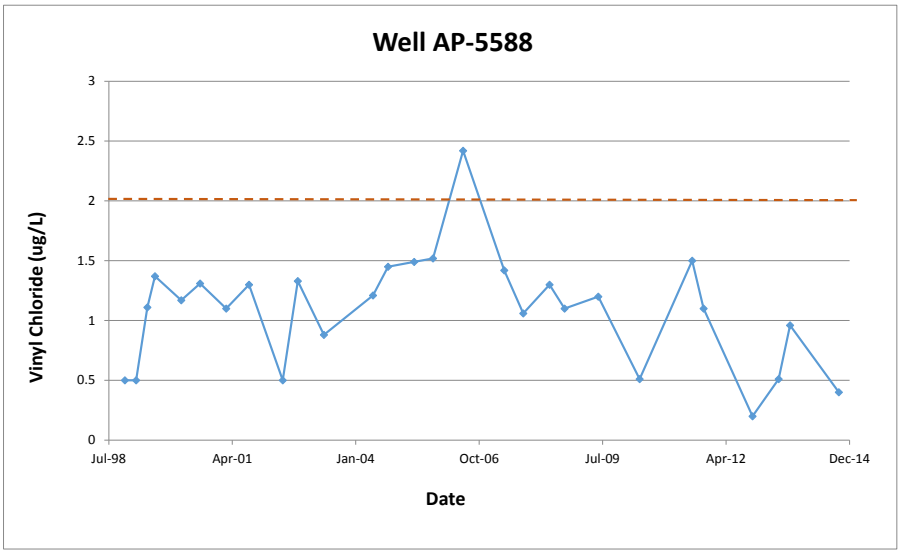
cis 1,2-Dichloroethene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	32	
S	-149	
g	2	No. tied groups
w	2	No. data points in each tied group
V(S)	3766.667	
z	-2.411477	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho rejected at 90% level of confidence; downward trend

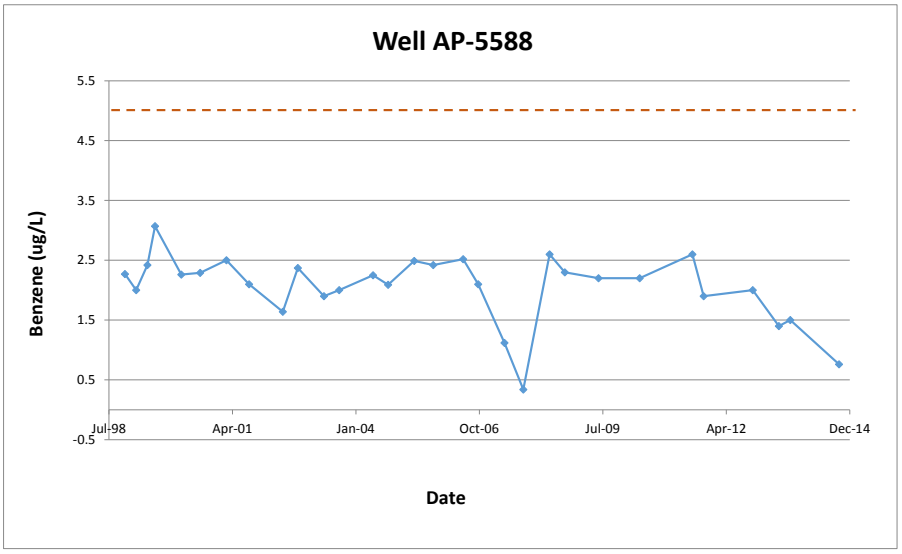
Vinyl Chloride Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	28	
S	-28	
g	8	No. tied groups
w	2	No. data points in each tied group
V(S)	2418	
z	-0.54908	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho accepted at 90% level of confidence; no trend

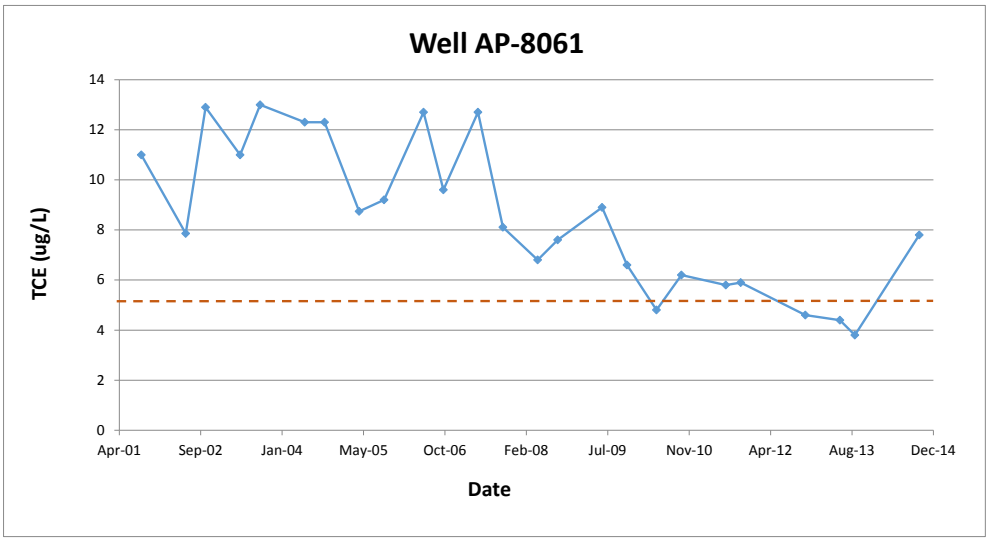
Benzene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	30	
S	-103	
g	7	No. tied groups
w	2	No. data points in each tied group
V(S)	3015.667	
z	-1.85741	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho rejected at 90% level of confidence; downward trend

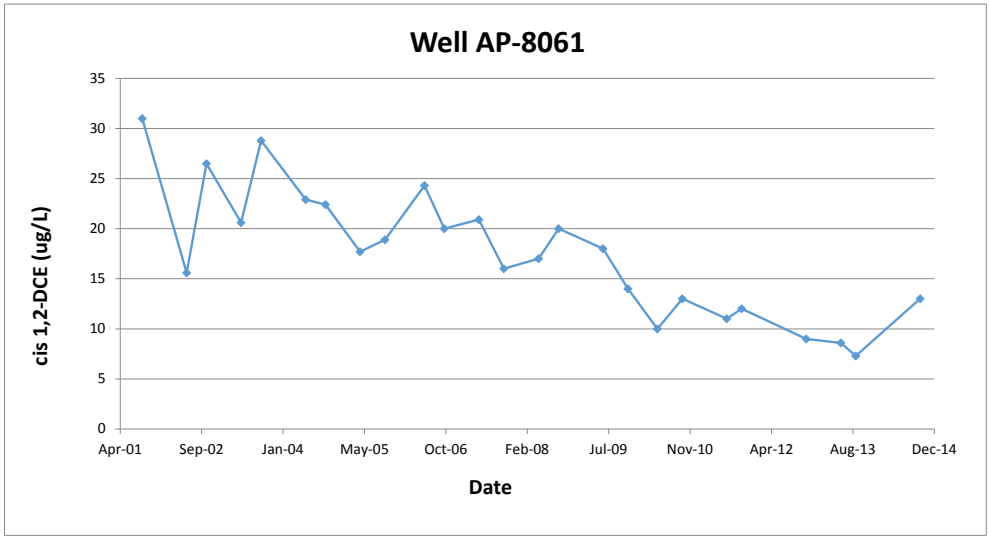
Trichloroethene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	25	
S	-187	
g	3	No. tied groups
w	2	No. data points in each tied group
V(S)	1779.333	
z	-4.409449	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho rejected at 90% level of confidence; downward trend

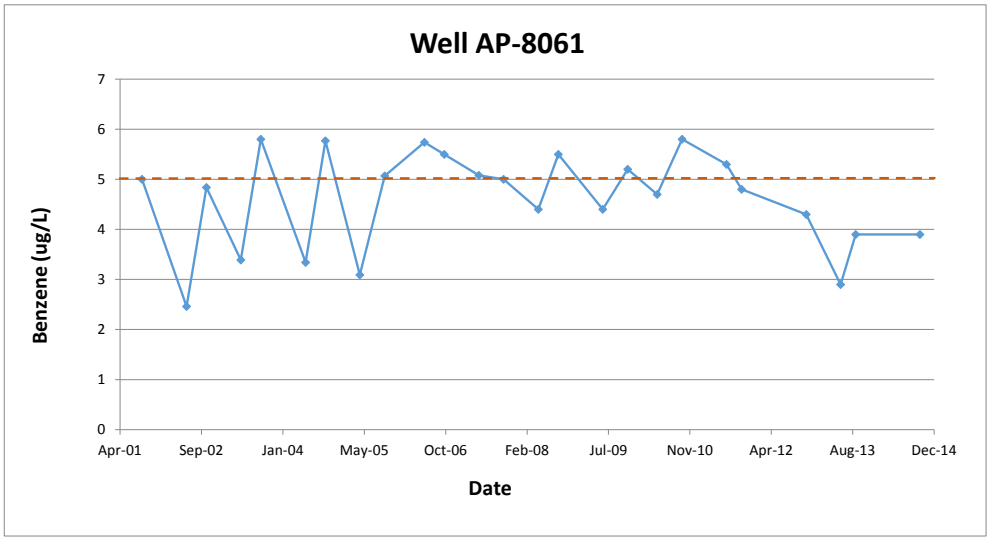
cis 1,2-Dichloroethene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	25	
S	-202	
g	1	No. tied groups
w	2	No. data points in each tied group
V(S)	1815.333	
z	-4.717565	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho rejected at 90% level of confidence; downward trend

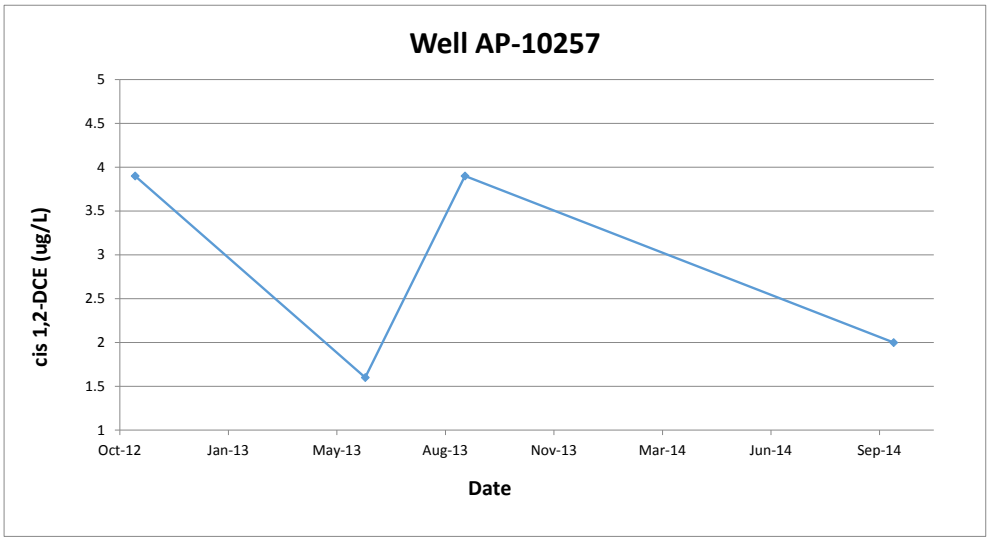
Benzene Concentration (ug/L)



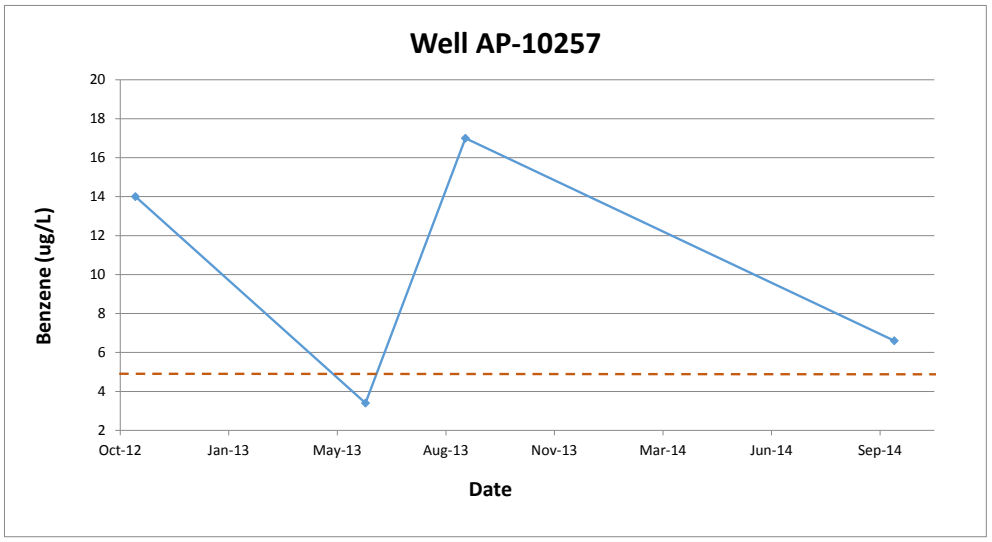
Mann-Kendall Test Using Normal Approximation for Larger Samples

n	25	
S	-31	
g	4	No. tied groups
w	2	No. data points in each tied group
V(S)	1761.333	
z	-0.714826	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho accepted at 90% level of confidence; no trend

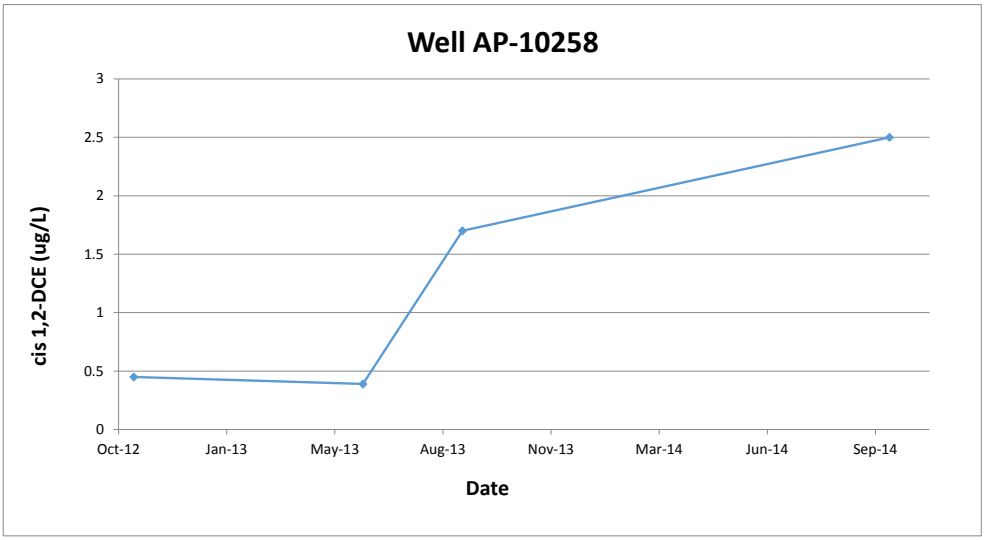
cis 1,2-Dichloroethene Concentration (ug/L)



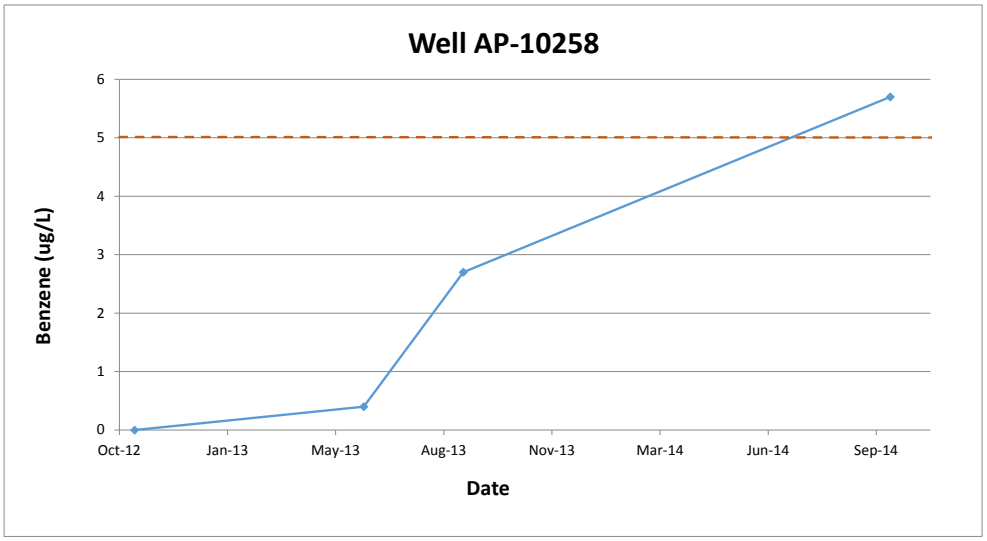
Benzene Concentration (ug/L)



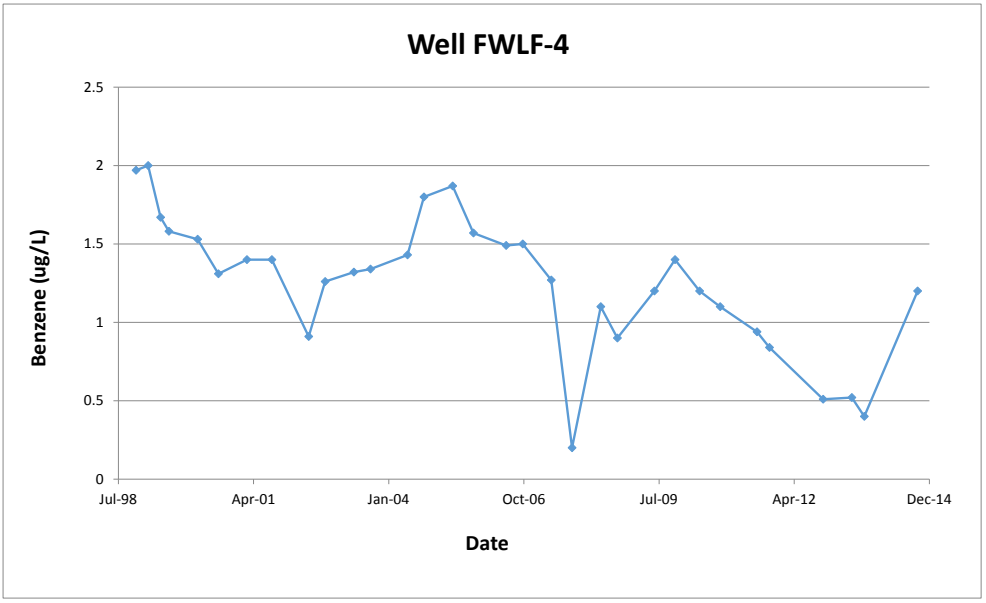
cis 1,2-Dichloroethene Concentration (ug/L)



Benzene Concentration (ug/L)



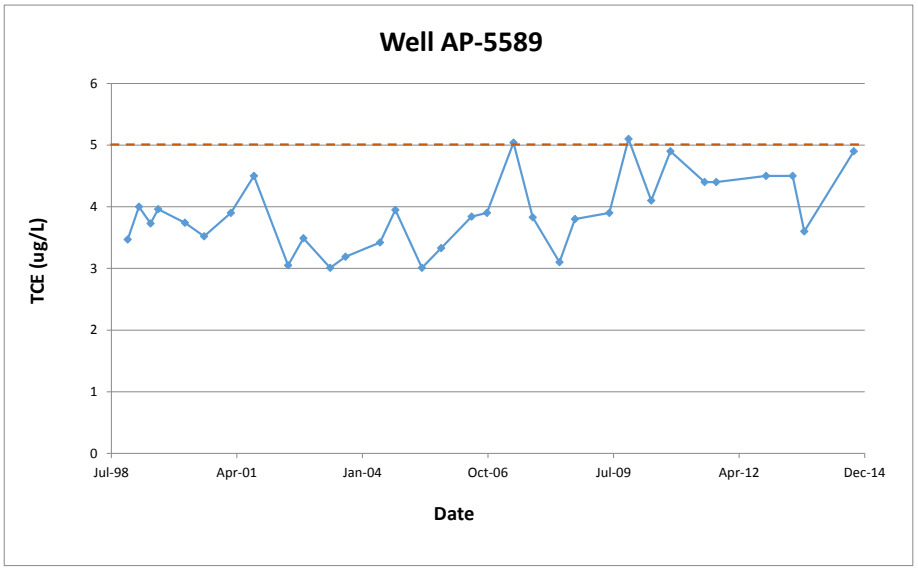
Benzene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	32	
S	-267	
g	6	No. tied groups
w	2	No. data points in each tied group
V(S)	3694.667	
z	-4.376168	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho rejected at 90% level of confidence; downward trend

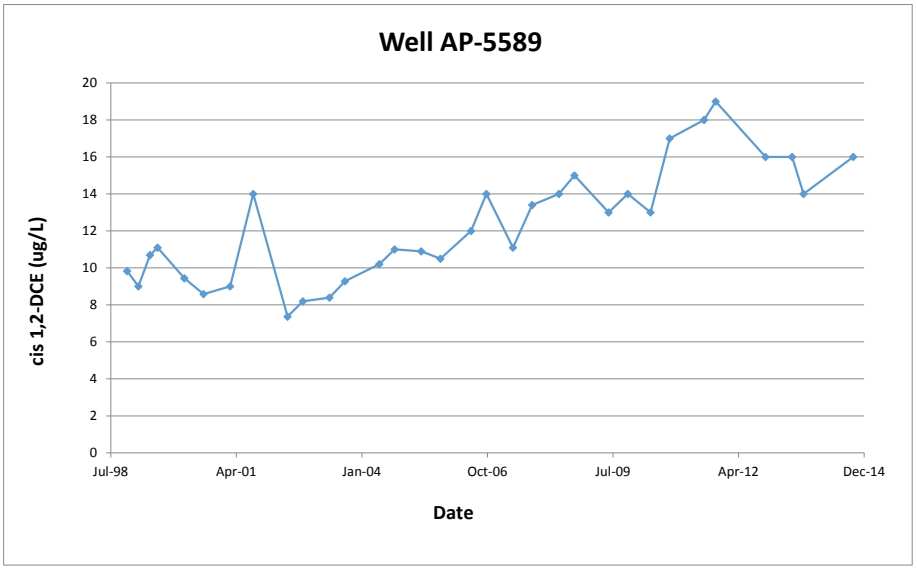
Trichloroethene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	32	
S	149	
g	9	No. tied groups
w	2	No. data points in each tied group
V(S)	3640.667	
z	2.452852	
Z(0.9)	1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Upward trend		
Reject Ho if z > Z(0.9)		Ho rejected at 90% level of confidence; upward trend

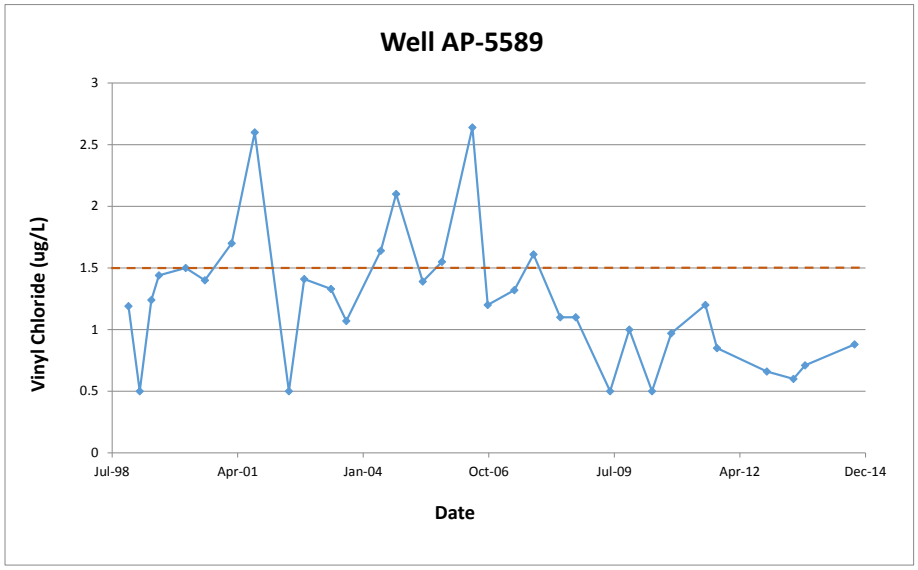
cis 1,2-Dichloroethene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	32	
S	304	
g	13	No. tied groups
w	2	No. data points in each tied group
V(S)	3568.667	
z	5.072121	
Z(0.9)	1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Upward trend		
Reject Ho if z > Z(0.9)		Ho rejected at 90% level of confidence; upward trend

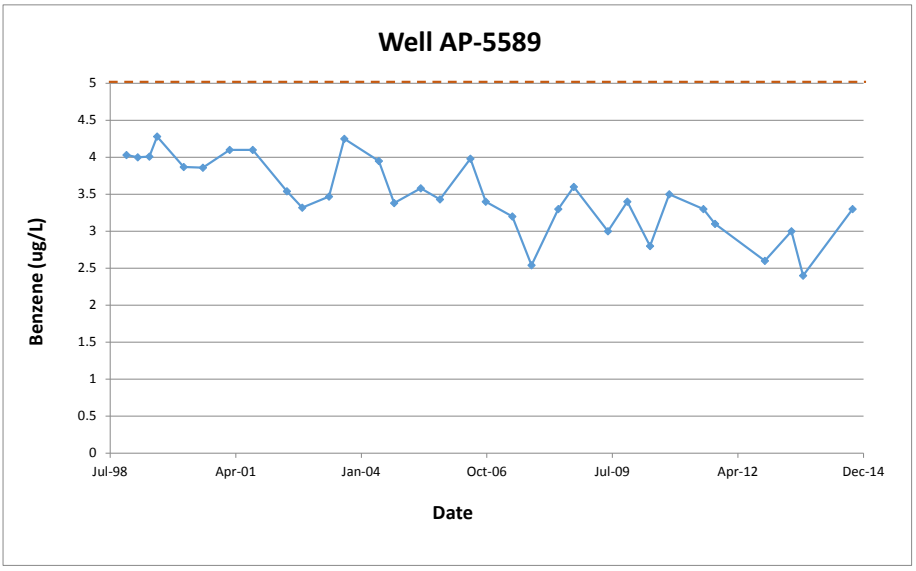
Vinyl Chloride Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	32	
S	-160	
g	8	No. tied groups
w	2	No. data points in each tied group
V(S)	3658.667	
z	-2.628668	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho rejected at 90% level of confidence; downward trend

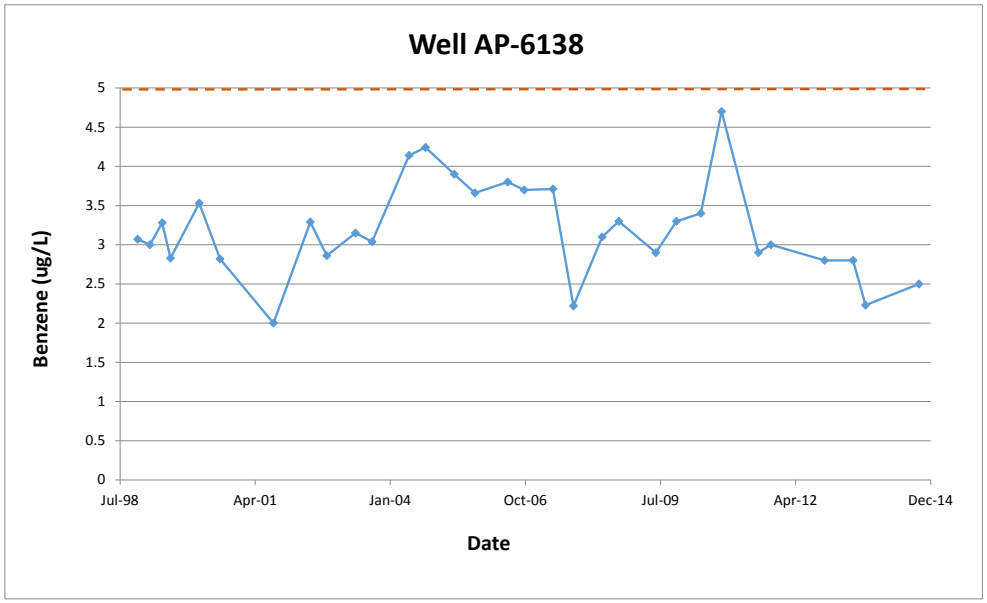
Benzene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	32	
S	-294	
g	6	No. tied groups
w	2	No. data points in each tied group
V(S)	3694.667	
z	-4.820366	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho rejected at 90% level of confidence; downward trend

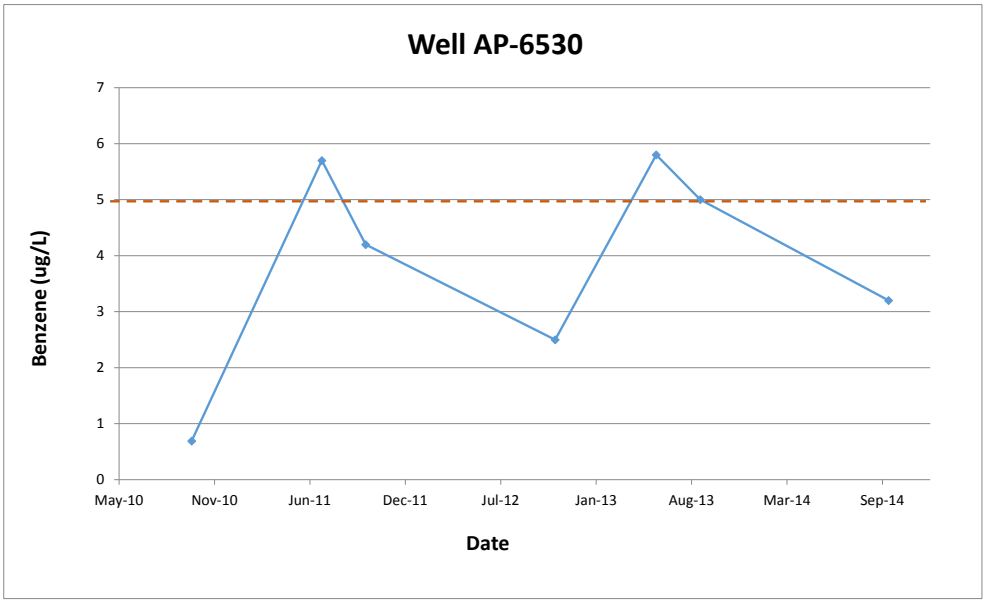
Benzene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	31	
S	-97	
g	4	No. tied groups
w	2	No. data points in each tied group
V(S)	3389.667	
z	-1.648894	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho rejected at 90% level of confidence; downward trend

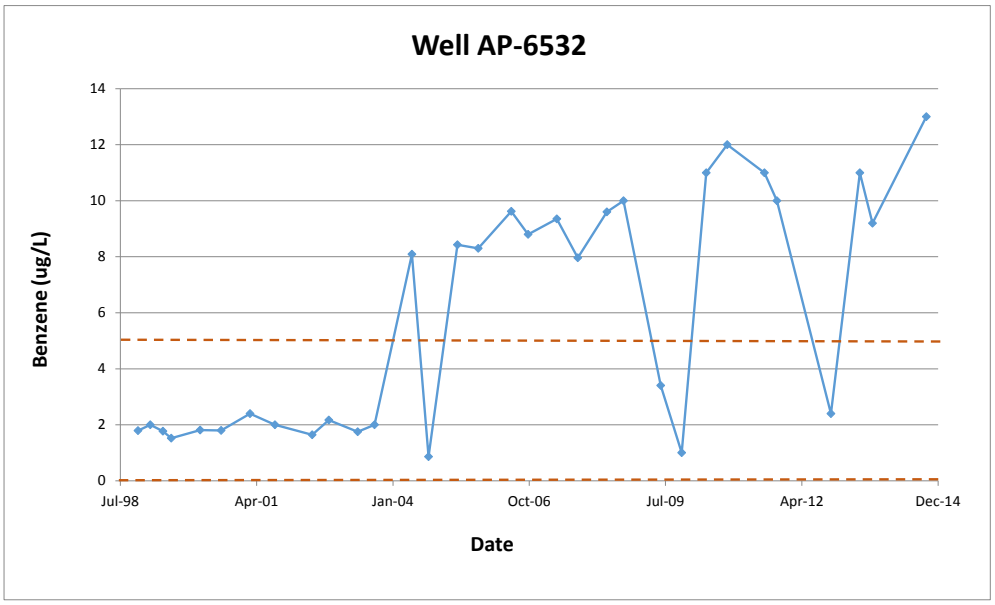
Benzene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Small Sample Size

n	7	
S	3	
p	0.386	Table B-10, EM 200-1-16
α	0.1	
Ho:	No trend	
Ha:	Upward trend	
	p>α	Ho rejected at 90% level of confidence, no trend

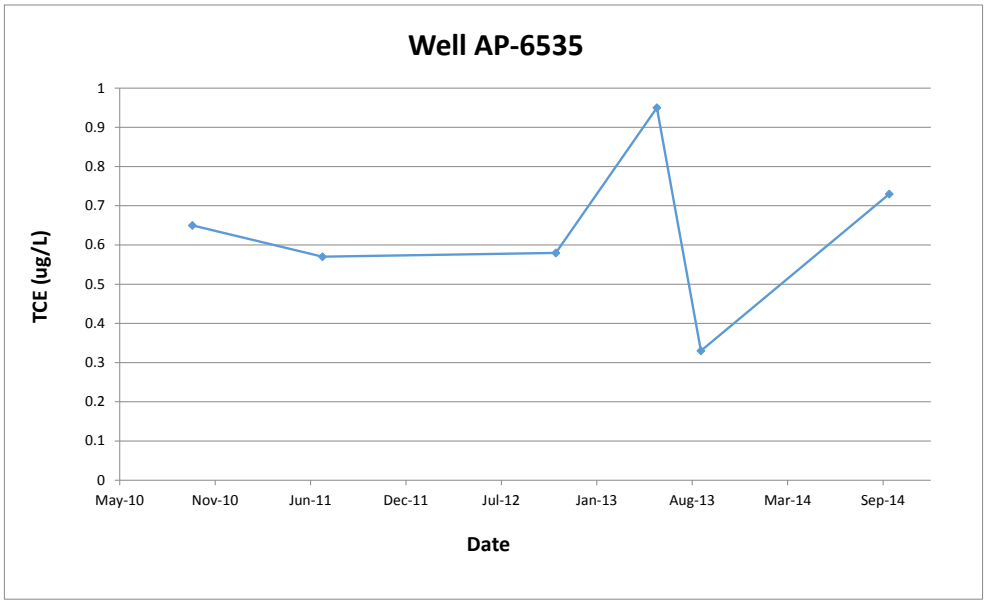
Benzene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	32	
S	270	
g	8	No. tied groups
w	2	No. data points in each tied group
V(S)	3658.667	
z	4.447243	
Z(0.9)	1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Upward trend		
Reject Ho if z > Z(0.9)		Ho rejected at 90% level of confidence; upward trend

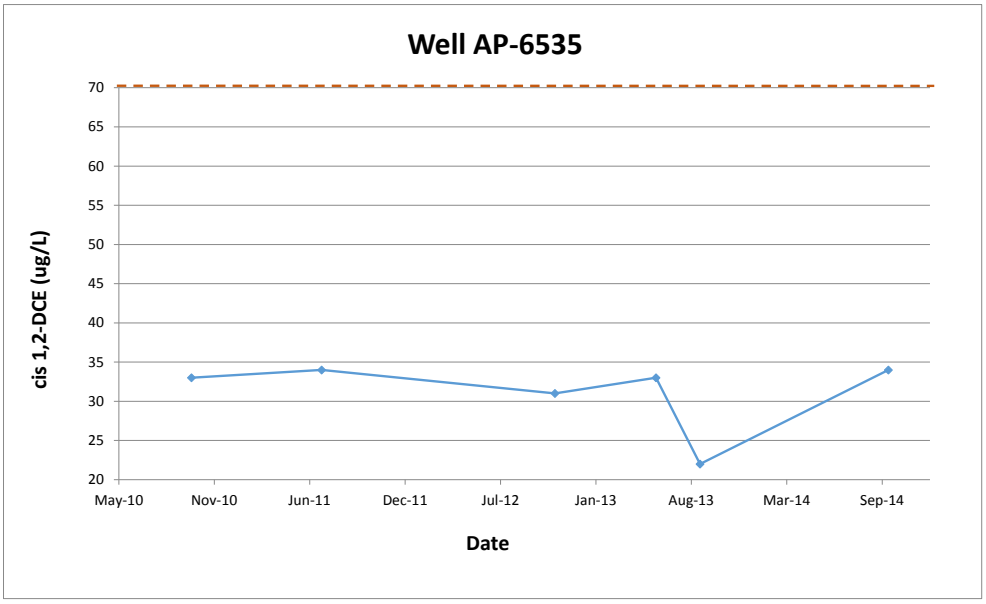
Trichloroethene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Small Sample Size

n	6	
S	1	
p	0.5	Table B-10, EM 200-1-16
α	0.1	
Ho:	No trend	
Ha:	Upward trend	
	p>α	Ho rejected at 90% level of confidence, no trend

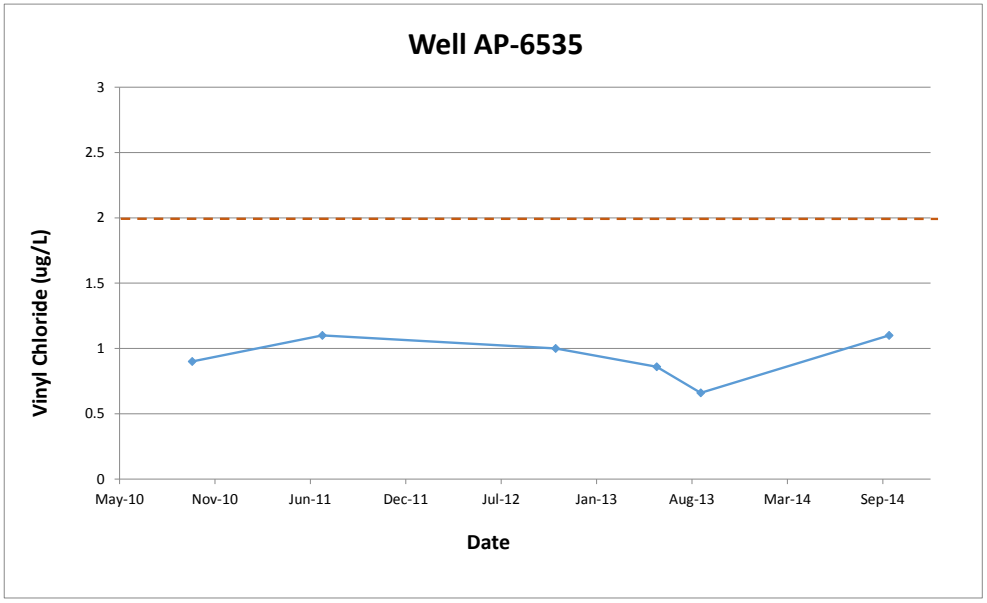
cis 1,2-Dichloroethene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Small Sample Size

n	6	
S	-1	
p	0.5	Table B-10, EM 200-1-16
α	0.1	
Ho:	No trend	
Ha:	Downward trend	
	p>α	Ho rejected at 90% level of confidence, no trend

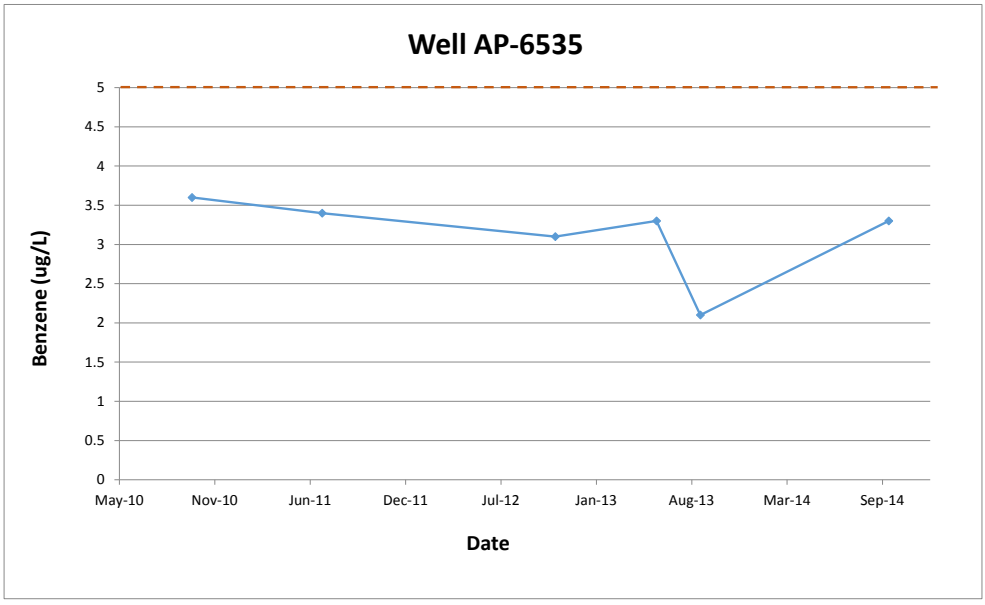
Vinyl Chloride Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Small Sample Size

n	6	
S	-2	
p	0.425	Table B-10, EM 200-1-16
α	0.1	
Ho:	No trend	
Ha:	Downward trend	
	p>α	Ho rejected at 90% level of confidence, no trend

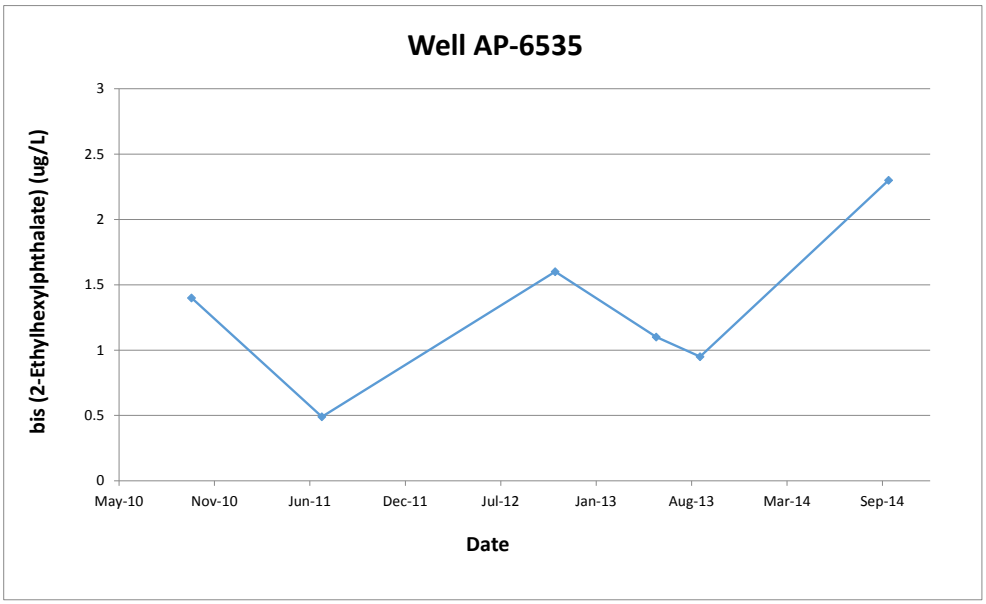
Benzene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Small Sample Size

n	6	
S	-8	
p	0.104	Table B-10, EM 200-1-16
α	0.1	
Ho:	No trend	
Ha:	Downward trend	
	p>α	Ho rejected at 90% level of confidence, no trend

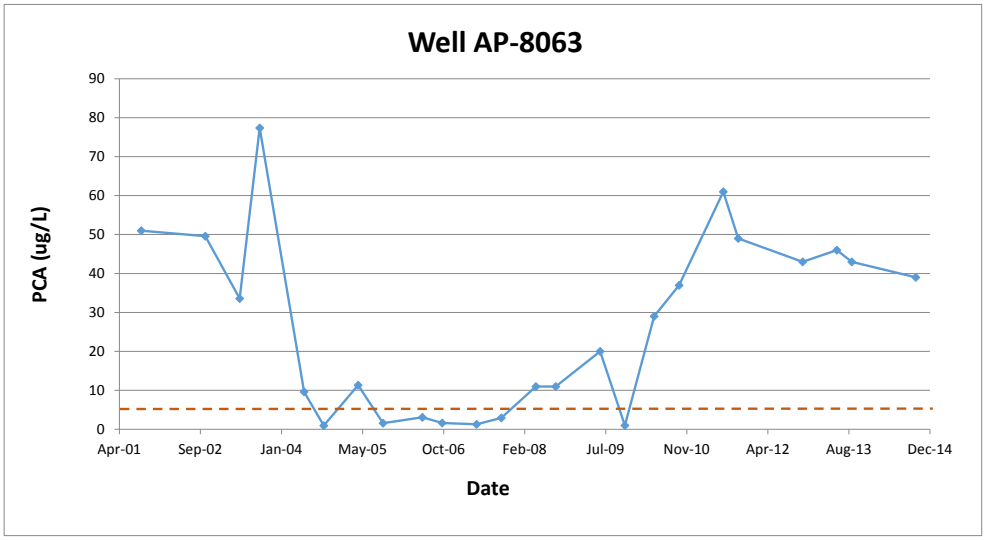
bis (2-Ethylhexylphthalate) Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Small Sample Size

n	6	
S	3	
p	0.36	Table B-10, EM 200-1-16
α	0.1	
Ho:	No trend	
Ha:	Upward trend	
	p>α	Ho rejected at 90% level of confidence, no trend

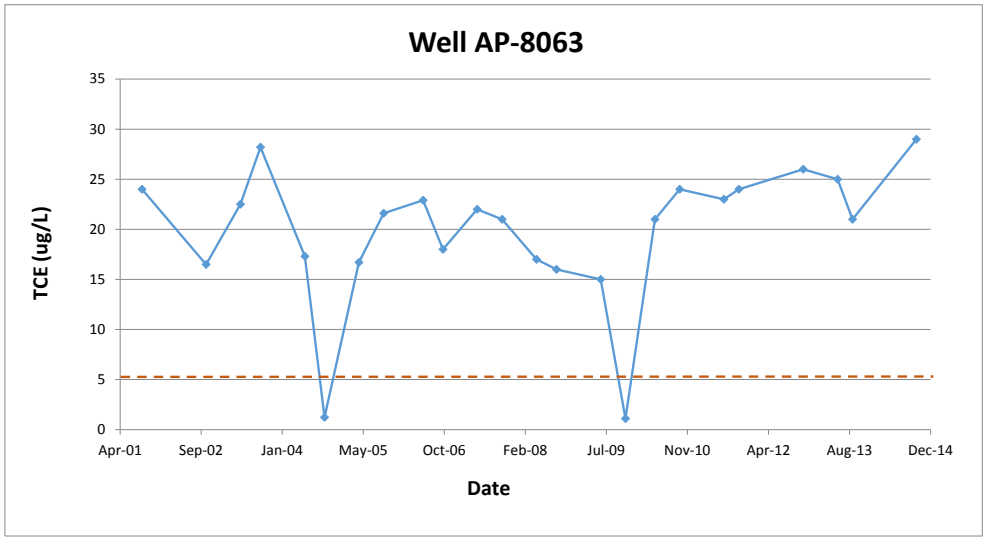
1,1,2,2-Tetrachloroethane Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	24	
S	44	
g	1	No. tied groups
w	2	No. data points in each tied group
V(S)	1607.333	
z	1.072545	
Z(0.9)	1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Upward trend		
Reject Ho if z > Z(0.9)		Ho accepted at 90% level of confidence; no trend

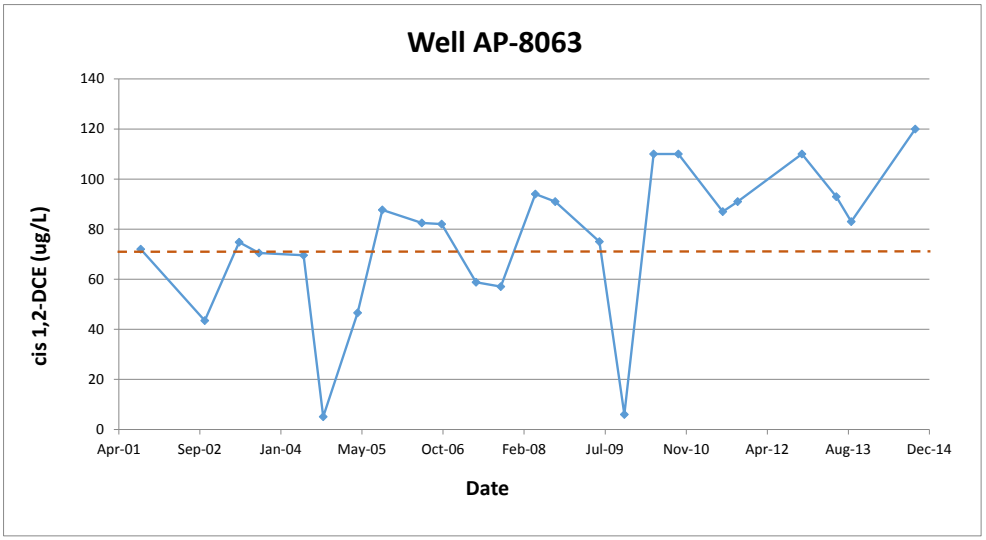
Trichloroethene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	24	
S	54	
g	6	No. tied groups
w	2	No. data points in each tied group
V(S)	1517.333	
z	1.360615	
Z(0.9)	1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Upward trend		
Reject Ho if z > Z(0.9)		Ho rejected at 90% level of confidence; upward trend

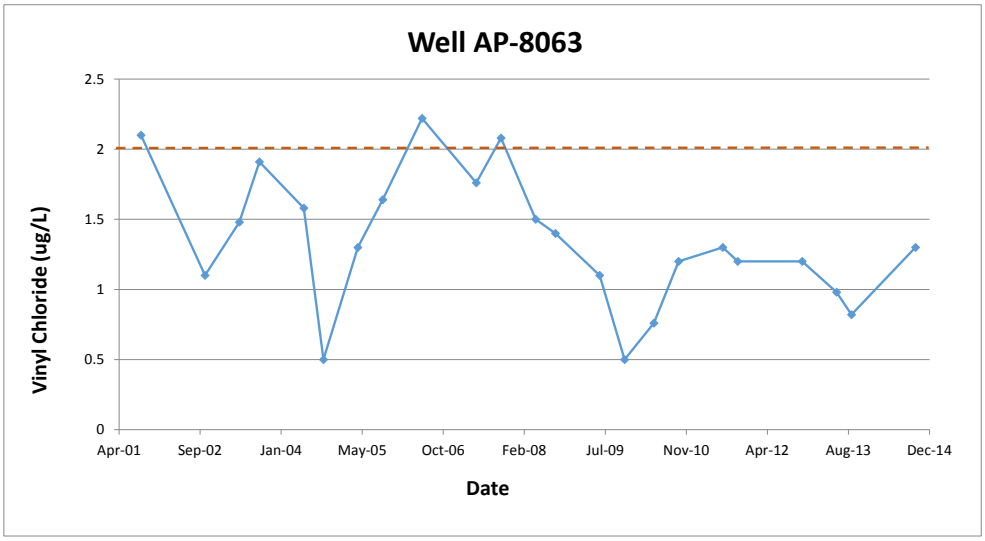
cis 1,2-Dichloroethene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	24	
S	124	
g	4	No. tied groups
w	2	No. data points in each tied group
V(S)	1553.333	
z	3.120849	
Z(0.9)	1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Upward trend		
Reject Ho if z > Z(0.9)		Ho rejected at 90% level of confidence; upward trend

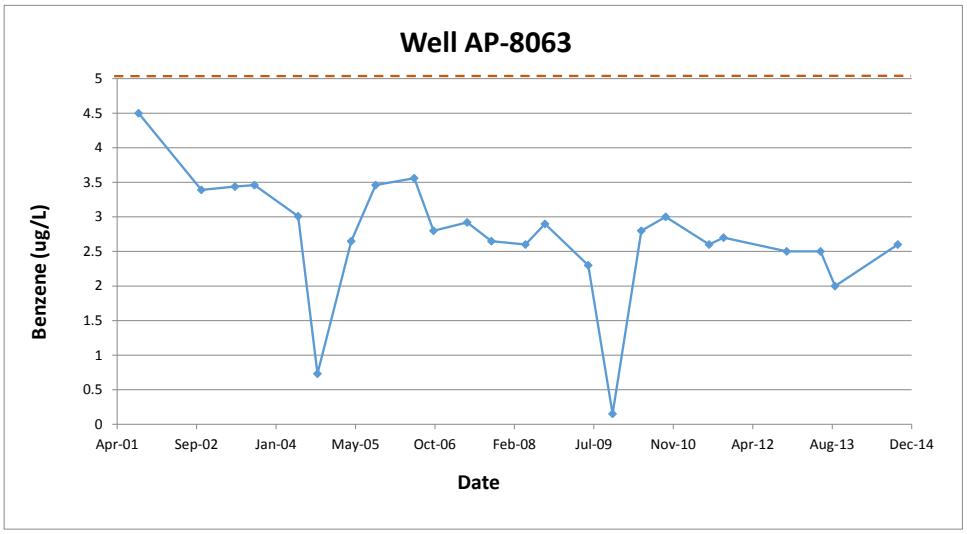
Vinyl Chloride Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	23	
S	-83	
g	8	No. tied groups
w	2	No. data points in each tied group
V(S)	1289.667	
z	-2.283364	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho rejected at 90% level of confidence; downward trend

Benzene Concentration (ug/L)



Mann-Kendall Test Using Normal Approximation for Larger Samples

n	24	
S	-131	
g	7	No. tied groups
w	2	No. data points in each tied group
V(S)	1499.333	
z	-3.35733	
-Z(0.9)	-1.28	(Table B-15, EM 200-1-16)
Ho: No trend		
Ha: Downward trend		
Reject Ho if z < Z(0.9)		Ho rejected at 90% level of confidence; downward trend

OU-5 West Quartermaster's Fueling System

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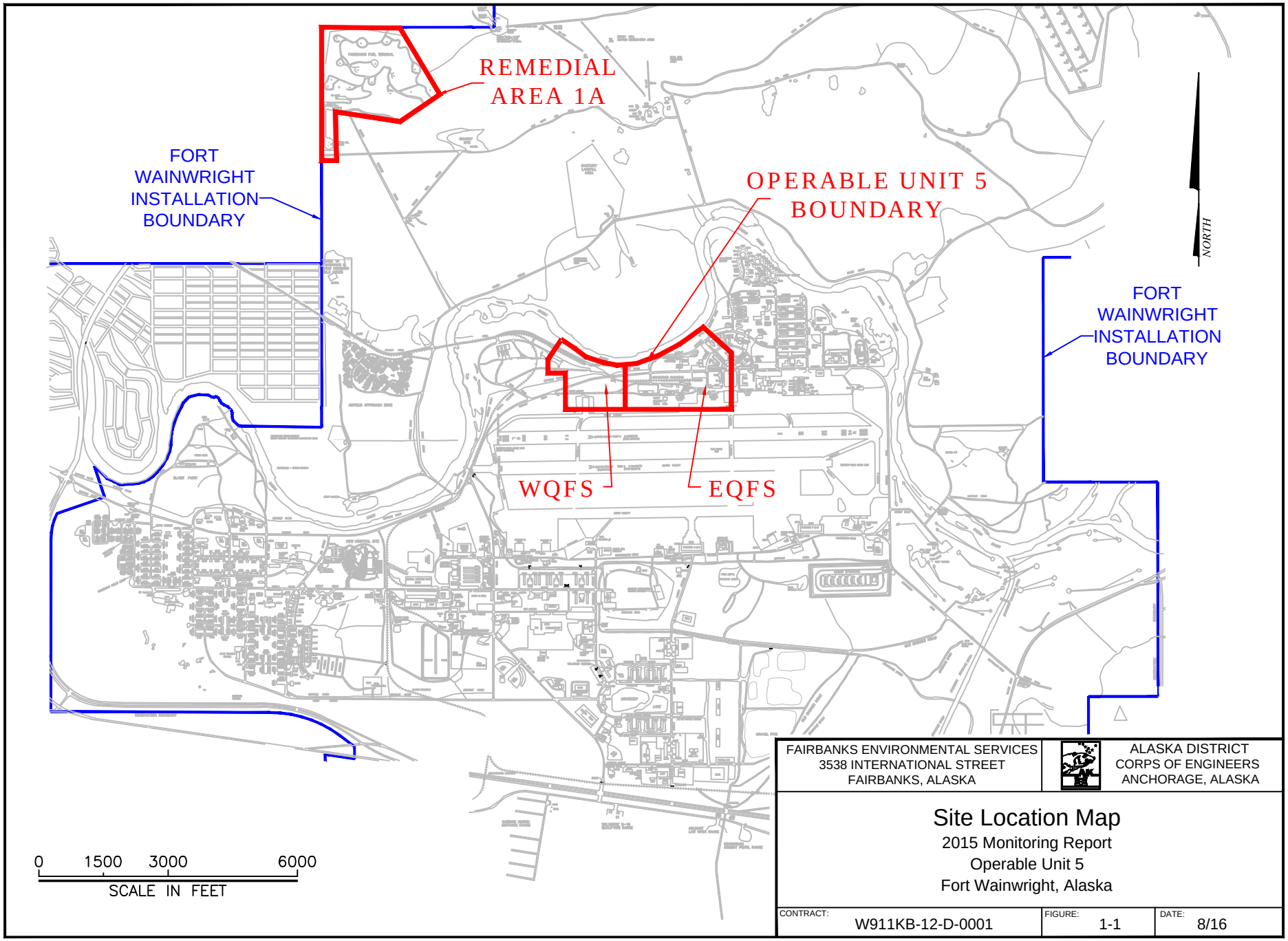

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FAIRBANKS, ALASKA

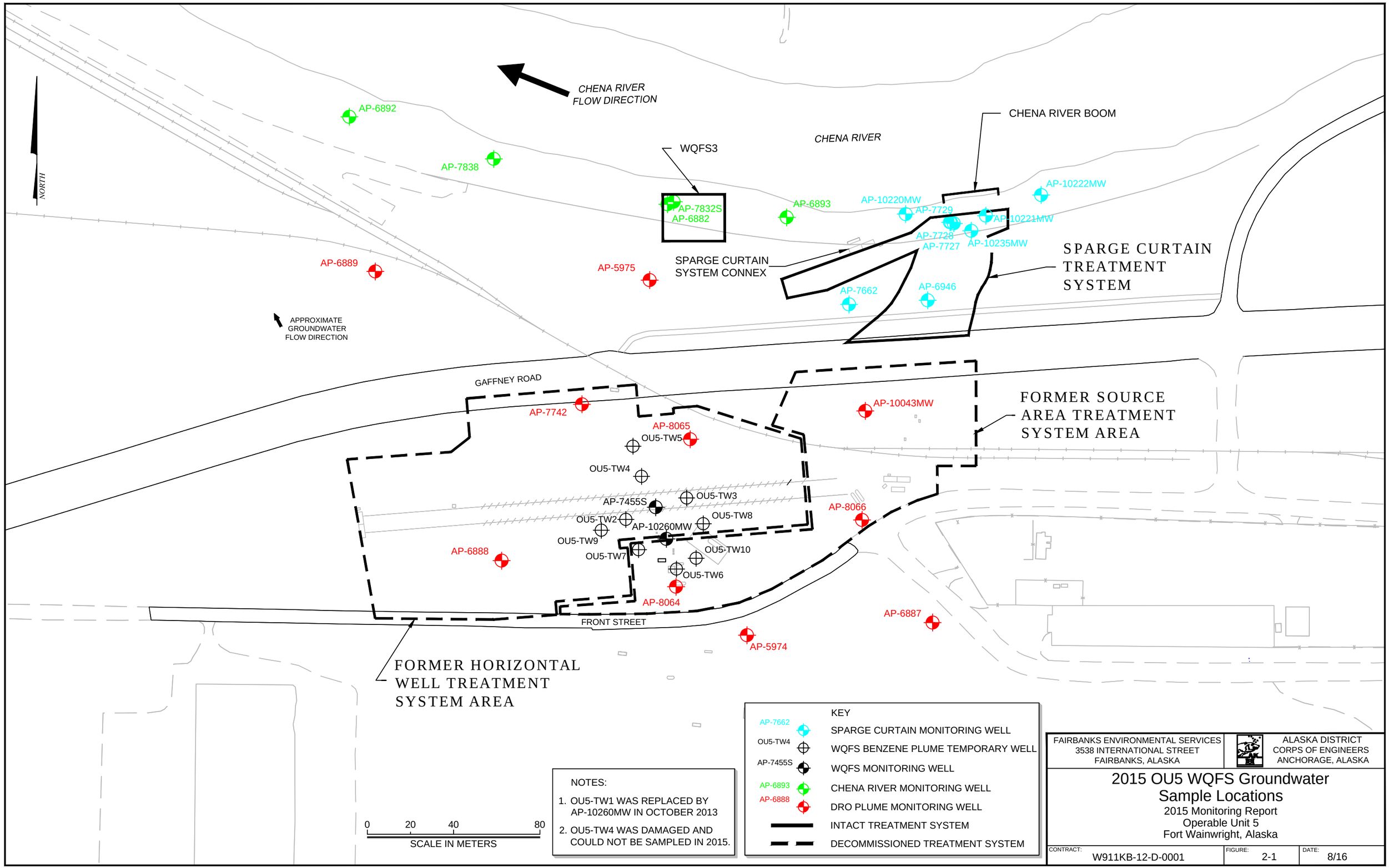
ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

Site Location Map

2015 Monitoring Report
Operable Unit 5
Fort Wainwright, Alaska

CONTRACT:	FIGURE:	DATE:
W911KB-12-D-0001	1-1	8/16

FIG 1 SITE LOC



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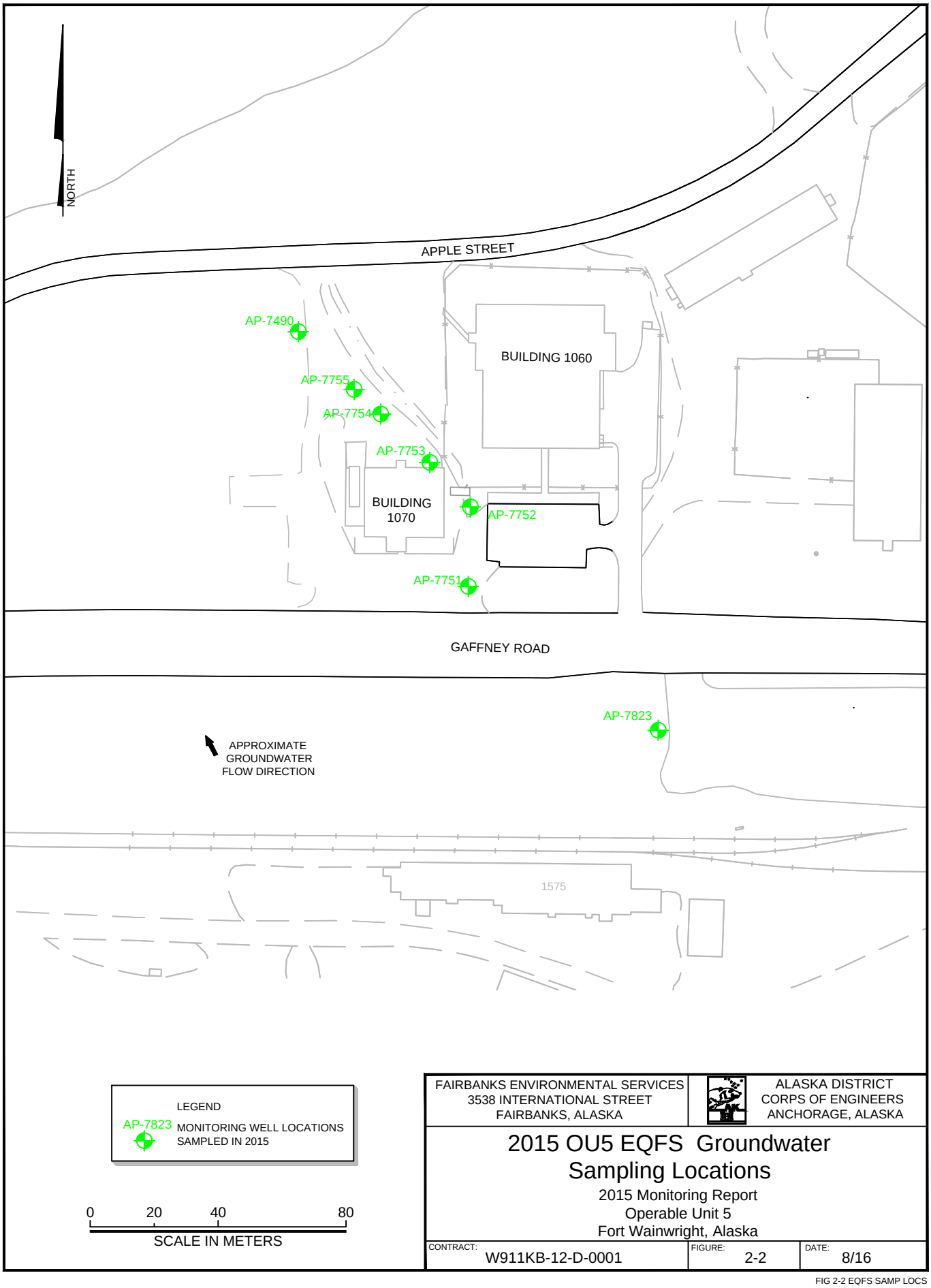
2015 OU5 WQFS Groundwater Sample Locations

2015 Monitoring Report
Operable Unit 5
Fort Wainwright, Alaska

CONTRACT:	FIGURE:	DATE:
W911KB-12-D-0001	2-1	8/16

FIG 2-1 SAMP LOCS



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2015 OU5 EQFS Groundwater Sampling Locations

2015 Monitoring Report
Operable Unit 5
Fort Wainwright, Alaska

CONTRACT:	FIGURE:	DATE:
W911KB-12-D-0001	2-2	8/16

FIG 2-2 EQFS SAMP LOCS

Table 3-2 - Sparge Curtain Groundwater Monitoring Results

Probe/Well Number	Proximity of Treatment System Influence	Sample Numbers	Screened Interval (ft-bgs)	Date	Water Elevation (ft-msl)	Dissolved Oxygen (mg/L)	Redox (mV)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	ROD Contaminants of Concern								AWQS	
											GRO (µg/L)	DRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	TCE (µg/L)	1,2-DCA (µg/L)	EDB by 8260C (µg/L)	EDB by 504.1 (µg/L)	TAH (µg/L)	TAqH (µg/L)
ROD CLEANUP LEVELS (µg/L)											**2,200**	**1,500**	**5**	**1,000**	**5**	**5**	**0.05**	**0.05**	**10**	**15**
AP-6946	Within	11FW5S08WG	10-25	6/14/11	434.47	0.64	-35	NA	NA	NA	330	**22,000**	4.1	0.58	ND(0.5)	ND(0.5)	ND(2)	NA	NA	NA
		11FW5S34WG		9/13/11	435.60	1.25	-9.5	NA	NA	NA	270	**25,000**	4.7	1.0	ND(0.5)	0.20 J	ND(2)	NA	NA	NA
		12FW5S02WG		3/7/12	433.95	0.45	-85.7	4.1	8.2	12.4	270	**29,000**	**5.5**	2.3	ND(0.1)	ND(0.15)	ND(0.2)	NA	NA	NA
		12FW5S11WG		8/28/12	0.00	0.36	58.8	3.79	10.4	16.1	220	**18,000 QL**	4.5	0.63	ND(0.1)	0.08 J,Q	ND(0.2)	NA	NA	NA
		12FW5S12WG[1]						3.65	9.68	16.7	220	**21,000 QL**	4.2	0.6	ND(0.1)	ND(0.15) Q	ND(0.2)	NA	NA	NA
		13FW5S03WG		4/16/13	433.95	0.02	-14.6	4.26	11.1	12.8	270	**22,000**	**6.4**	0.7	ND(0.1)	ND(0.27)	ND(0.2)	NA	NA	NA
		14FWOU532WG		10/30/14	436.19	0.54	24.5	6.14	22	93.6	480	**33,000**	**9.9**	1.5	ND(0.1)	ND(0.15)	ND(0.2)	NA	NA	NA
		15FWOU509WG[3]		5/19/15	NA	NA	NA	5.77	34.1	28.4	420	**41,000**	**9.9**	1.5	ND(0.1)	ND(0.15)	ND(0.2)	NA	NA	NA
		15FWOU558WG		8/25/15	436.23	0.62	23.7	5.76 J-	41.3 J-	28.1	400	**43,000**	**8.3**	1.2	ND(0.1)	0.16 J	ND(0.2)	NA	NA	NA
AP-7727	Within	11FW5S06WG-B[2]	38-43	6/13/11	434.44	0.65	-22.7	NA	NA	NA	21 J	51 J	0.09 J	0.18 J	0.35 J	ND(0.5)	ND(2)	NA	NA	NA
		11FW5S32WG		9/12/11	435.36	1.04	-5.6	NA	NA	NA	16 J	71 J,B	0.090 J	0.30 J	0.35 J	ND(0.5)	ND(2)	NA	NA	NA
		12FW5S03WG		3/7/12	433.82	0.52	-60.7	1.4	3.4	25.3	23 J	40 J,B	0.14 J	1.1 J	0.34 J	ND(0.15)	ND(0.2)	NA	NA	NA
		12FW5S14WG		8/28/12	434.31	0.17	-30	1.31	3.21	23.3	24 J,B	45 J,QL	ND(0.1)	0.06 J	0.35 J	ND(0.15)	ND(0.2)	NA	NA	NA
		13FW5S01WG		4/16/13	434.71	0.08	10.2	1.4	3.55	25.6	13 J,B	61 J,B	ND(0.2)	0.1 J	0.38 J	ND(0.15)	ND(0.2)	NA	NA	NA
		14FWOU531WG		10/30/14	436.10	0.5	54.2	1.31	2.98	23.2	17 J	46 J	ND(0.1)	0.07 J	0.40 J	ND(0.15)	ND(0.2)	NA	NA	NA
		15FWOU506WG		5/19/15	435.60	1.41	53.6	1.39	3.33	26.4	ND(25)	50 J,B	ND(0.1)	0.06 J	0.40 J	ND(0.15)	ND(0.2)	NA	NA	NA
		15FWOU552WG		8/25/15	436.28	0.16	-62.2	1.28	3.09	25.8	15 J	84 J,B	ND(0.1)	0.09 J	0.40 J	0.08 J	ND(0.2) J-	NA	NA	NA
AP-7728	Within	11FW5S07WG	30-35	6/13/11	434.34	13.9	31.3	NA	NA	NA	ND(100)	38 J	ND(0.5)	0.13 J	0.20 J	ND(0.5)	ND(2)	NA	NA	NA
		11FW5S31WG		9/12/11	435.32	12.72	54.4	NA	NA	NA	ND(100)	77 J	ND(0.5)	0.17 J	0.11 J	ND(0.5)	ND(2)	NA	NA	NA
		12FW5S04WG		3/7/12	434.11	5.77	44.7	0.0008 J	ND(0.0004)	26.5	ND(25)	41 J,B	0.12 J	1.9	0.22 J	ND(0.15)	ND(0.2)	NA	NA	NA
		12FW5S15WG		8/28/12	434.31	0.25	89.5	1.34	0.01	23.9	32 J,B	52 J,QL	ND(0.1)	0.06 J	0.28 J	ND(0.15)	ND(0.2)	NA	NA	NA
		13FW5S02WG		4/16/13	433.70	0.06	53.6	2.74	0.0574	26.3	26 J,B	52 J,B	ND(0.1)	0.09 J	0.33 J	ND(0.15)	ND(0.2)	NA	NA	NA
		14FWOU529WG		10/29/14	436.14	0.34	67	2.65	0.023	23.3	28 J	57 J	ND(0.1)	0.06 J	0.34 J	ND(0.15)	ND(0.2)	NA	NA	NA
		15FWOU505WG		5/18/15	435.65	0.31	87.5	2.84	0.046	26.9	18 J	56 J,B	ND(0.1)	ND(0.1)	0.36 J	ND(0.15)	ND(0.2)	NA	NA	NA
		15FWOU553WG		8/25/15	436.27	0.15	8.5	2.81	0.034	26.2	ND(25)	63 J,B	ND(0.1)	0.13 J	0.33 J	ND(0.15)	ND(0.2) J-	NA	NA	NA
AP-7729	Within	11FW5S03WG	21-26	6/9/11	434.24	16.35	156.8	NA	NA	NA	ND(100)	35 J	0.06 J	0.22 J	ND(0.5)	ND(0.5)	ND(2)	ND(0.0096)	0.8	0.9
		11FW5S30WG		9/12/11	435.25	13.97	53.7	NA	NA	NA	ND(100)	61 J,B	ND(0.5)	0.23 J	ND(0.5)	ND(0.5)	ND(2)	ND(0.0095)	1.14	1.36
		12FW5S05WG		3/8/12	433.80	11.16	192.3	0.0004 J	ND(0.0004)	31.9	ND(25)	45 J,B	0.07 J	0.79	ND(0.5)	ND(0.15)	ND(0.2)	ND(0.004)	1.38	1.49
		12FW5S19WG		8/29/12	434.56	0.17	143.9	0.061	0.0036 J,B	28.2	ND(25)	40 J,B	ND(0.1)	0.14 J,B	0.26 J	ND(0.15)	ND(0.2)	ND(0.004)	0.74	0.90
		12FW5S20WG[1]						0.063	0.0041 J,B	28.3	ND(25)	39 J,B	ND(0.1)	0.14 J,B	0.26 J	ND(0.15)	ND(0.2)	ND(0.004)	0.74	0.89
		13FW5S06WG		4/17/13	433.65	0.31	90.9	0.445	ND(0.008)	28.1	15 J,B	56 J,B	ND(0.1)	0.06 J	0.26 J	ND(0.15)	ND(0.2)	ND(0.004)	0.66	0.74
		14FWOU527WG		10/29/14	436.08	0.28	66.3	2.51	0.152	26.2	34 J	56 J	ND(0.1)	ND(0.1)	0.37 J	ND(0.15)	ND(0.2)	ND(0.004)	0.70	0.81
		15FWOU504WG		5/18/15	435.59	0.68	95.3	2.75	0.223	27.5	ND(25)	59 J,B	ND(0.1)	ND(0.1)	0.32 J	ND(0.15)	ND(0.2)	ND(0.004)	0.50	0.61
		15FWOU554WG		8/25/15	436.26	0.12	9.9	2.78	0.23	26.6	15 J	85 J,B	ND(0.1)	0.08 J	0.35 J	ND(0.15)	ND(0.2)	ND(0.004)	0.48	0.59

Table 3-2 - Sparge Curtain Groundwater Monitoring Results

Probe/Well Number	Proximity of Treatment System Influence	Sample Numbers	Screened Interval (ft-bgs)	Date	Water Elevation (ft-msl)	Dissolved Oxygen (mg/L)	Redox (mV)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	ROD Contaminants of Concern								AWQS	
											GRO (µg/L)	DRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	TCE (µg/L)	1,2-DCA (µg/L)	EDB by 8260C (µg/L)	EDB by 504.1 (µg/L)	TAH (µg/L)	TAqH (µg/L)
ROD CLEANUP LEVELS (µg/L)											**2,200**	**1,500**	**5**	**1,000**	**5**	**5**	**0.05**	**0.05**	**10**	**15**
AP-10235MW	Within	12FW5S06WG	18-23	3/8/12	NA	10.65	168.5	0.0011 J,Q	0.0035 J,Q	50	ND(100)	1,100 Q	0.12 J	1.5	ND(0.5)	ND(0.5)	ND(2)	ND(0.0097)	2.39	2.49
		12FW5S07WG[1]						0.0016 J,Q	0.0051 J,Q	50	ND(25)	550 Q	0.14 J	1.4	ND(0.5)	ND (0.5)	ND(0.2)	ND(0.004)	2.36	2.47
		12FW5S17WG		8/29/12	NA	1.27	83.9	0.046	0.019 J,B	34.9	14 J,B	600 J	ND(0.1)	0.08 J,B	0.13 J	ND(0.15)	ND(0.2)	ND(0.004)	0.68	0.83
		13FW5S10WG		4/17/13	NA	0.22	61.5	0.719	0.0291	26	ND(25)	1,100	0.11 J	0.07 J	0.14 J	ND(0.15)	ND(0.2)	ND(0.004)	0.68	0.7974
		14FWOU521WG		10/29/14	NA	0.3	60.4	2.31	0.125	25.9	17 J	1,400	0.16 J	0.07 J	0.17 J	ND(0.15)	ND(0.1)	ND(0.004)	0.73	0.88
		15FWOU502WG[3]		5/18/15	NA	NA	NA	2.97	0.497	29.9	17 J	1,100	ND(0.1)	ND(0.1)	0.17 J	ND(0.15)	ND(0.2)	ND(0.004)	0.5	0.71
		15FWOU555WG		8/25/15	NA	2.81	150.6	3.01	0.831	27.5	20 J	**2,200**	0.09 J	ND(0.1)	0.17 J	ND(0.15)	ND(0.2)	ND(0.004)	0.49	0.71
AP-10220MW	Within	11FW5S04WG	13-23	6/9/11	434.28	11.93	172.6	NA	NA	NA	ND(100)	480 J	0.06 J	0.27 J	ND(0.5)	ND(0.5)	ND(2)	ND(0.0095)	0.8	0.9
		11FW5S35WG		9/13/11	435.39	10.38	30.7	NA	NA	NA	ND(100)	500 J	ND(0.5)	0.33 J,Q	ND(0.5)	ND(0.5)	ND(2)	ND(0.0096)	1.2	1.4
		11FW5S36WG[1]						NA	NA	NA	ND(100)	490 J	ND(0.5)	0.64	ND(0.5)	ND(0.5)	ND(2)	ND(0.0097)	1.2	1.4
		12FW5S10WG		3/9/12	433.81	0.25	206.9	0.026	0.0046 J	28.3	ND(25)	880	0.25 J	1.3	0.23 J	ND(0.15)	ND(0.2)	ND(0.004)	2.18	2.28
		12FW5S16WG		8/29/12	434.53	0.23	37.1	3.98	0.08	23.5	36 J,B	**1,800**	1.1	0.10 J,B	0.21 J	ND(0.15)	ND(0.2)	ND(0.004)	1.58	1.74
		13FW5S07WG		4/17/13	433.64	0.32	61.1	4.08	2.08	23.3	28 J,B	1,300	0.85	0.06 J	0.26 J	ND(0.15)	ND(0.2)	ND(0.004)	1.41	1.53
		13FW5S08WG[1]						4.15	2.15	23.1	28 J,B	1,400	0.73	0.06 J	0.23 J	ND(0.15)	ND(0.2)	ND(0.004)	1.29	1.41
		14FWOU519WG		10/29/14	436.10	0.45	40.5	3.55	7.52	30.5	70 J	**3,300**	2.1	0.17 J	0.19	ND(0.15)	0.060 J	ND(0.004)	2.93	3.07
		14FWOU520WG[1]						3.61	7.57	32.6	71 J	**3,200**	2.1	0.18 J	0.18 J	ND(0.15)	0.050 J	ND(0.004)	2.91	3.22
		15FWOU507WG		5/19/15	435.48	0.55	24.9	2.99	10.1	25.2	39 J	1,300	1.0	ND(0.1)	0.23 J	ND(0.15)	ND(0.2)	ND(0.004)	1.40	1.65
		15FWOU508WG[1]						3.07	10.1	26.8	39 J	1,300	1.0	ND(0.1)	0.25 J	ND(0.15)	ND(0.2)	ND(0.004)	1.40	1.61
		15FWOU550WG		8/25/15	436.24	0.19	-87.5	2.9	11.2	25.1	36 J	**2300 J-**	1.2	ND(0.1)	0.23 J	ND(0.15)	ND(0.2) J-	ND(0.004)	1.60	1.84
		15FWOU551WG[1]						2.86	11.2	25.0	38 J	**2300 J-**	1.1	0.06 J	0.22 J	0.08 J	ND(0.2) J-	ND(0.004)	1.46	1.70
AP-10221MW	Within	11FW5S02WG	13-23	6/9/11	434.22	11.54	123	NA	NA	NA	13 J	160 J	ND(0.5)	0.21 J	ND(0.5)	ND(0.5)	ND(2)	ND(0.0095)	0.7	0.8
		11FW5S29WG		9/12/11	435.17	11.32	52.1	NA	NA	NA	ND(100)	240 J	ND(0.5)	0.69	ND(0.5)	ND(0.5)	ND(2)	ND(0.0096)	1.59	1.76
		12FW5S08WG		3/8/12	433.74	5.76	172.5	0.002 J	0.005 J	32.9	ND(100)	160 J	0.08 J	0.98	0.12 J	ND(0.15)	ND(0.2)	ND(0.004)	1.67	1.78
		12FW5S21WG		8/29/12	434.56	0.17	18.2	0.089	0.095	29.4	17 J,B	140 J,B,ML	ND(0.1)	0.2 J,B	0.24 J	ND(0.15)	ND(0.2)	ND(0.004)	0.80	0.93
		13FW5S05WG		4/17/13	433.62	0.27	99.6	0.172	0.182	29.9	ND(25)	190 J	ND(0.1)	ND(0.1)	0.24 J	ND(0.15)	ND(0.2)	ND(0.004)	0.7	0.79
		14FWOU525WG		10/29/14	436.05	0.31	72.8	1.68	0.024 J	28.9	15 J	200 J	ND(0.1)	0.08 J	0.27 J	ND(0.15)	ND(0.1)	ND(0.004)	0.68	0.80
		15FWOU503WG[3]		5/18/15	NA	NA	NA	1.93	0.211	30.5	14 J	200 J	ND(0.1)	ND(0.1)	0.27 J	ND(0.15)	ND(0.2)	ND(0.004)	0.5	0.62
		15FWOU556WG		8/25/15	436.13	0.42	-101.4	2.13	0.367	27.8	17 J	390 J	ND(0.1)	ND(0.1)	0.27 J	ND(0.15)	ND(0.2)	ND(0.004)	0.5	0.62
AP-10222MW	Outside	11FW5S01WG	13-23	6/9/11	434.29	9.82	76.4	NA	NA	NA	ND(100)	67 J	ND(0.5)	0.22 J	0.21 J	ND(0.5)	ND(2)	ND(0.0096)	0.7	0.8
		11FW5S28WG		9/12/11	435.19	5.9	77.3	NA	NA	NA	ND(100)	44 J	ND(0.5)	0.24 J	0.24 J	ND(0.5)	ND(2)	ND(0.0096)	1.11	1.33
		12FW5S09WG		3/9/12	433.78	0.35	105.3	0.59	0.014 J	29.3	ND(25)	52 J	0.07 J	0.82	0.28 J	ND(0.15)	ND(0.2)	ND(0.004)	1.33	1.46
		12FW5S18WG		8/29/12	434.59	0.76	33.2	0.67	0.017 J,B	29.1	14 J,B	48 J,B	ND(0.1)	0.12 J,B	0.27 J	ND(0.15)	ND(0.2)	ND(0.004)	0.72	0.87
		13FW5S09WG		4/17/13	433.68	0.22	75.4	0.989	0.0116 J	28.6	ND(25)	69 J,B	ND(0.1)	0.07 J	0.26 J	ND(0.15)	ND(0.2)	ND(0.004)	0.67	0.7515
		14FWOU523WG		10/29/14	436.11	0.29	74.6	1.27	0.003 J	31.3	ND(25)	52 J	ND(0.1)	0.09 J	0.27 J	ND(0.15)	ND(0.1)	ND(0.004)	0.69	0.80
		15FWOU501WG[3]		5/18/15	NA	NA	NA	1.43	0.016	29.8	ND(25)	60 J,B	ND(0.1)	ND(0.1)	0.29 J	ND(0.15)	ND(0.2)	ND(0.004)	0.5	0.61
		15FWOU557WG		8/25/15	436.23	0.41	98.0	1.64	0.059	29.5	ND(25)	66 J,B	ND(0.1)	ND(0.1)	0.31 J	ND(0.15)	ND(0.2)	ND(0.004)	0.5	0.62

Table 3-2 - Sparge Curtain Groundwater Monitoring Results

Probe/Well Number	Proximity of Treatment System Influence	Sample Numbers	Screened Interval (ft-bgs)	Date	Water Elevation (ft-msl)	Dissolved Oxygen (mg/L)	Redox (mV)	Dissolved Manganese (mg/L)	Dissolved Iron (mg/L)	Sulfate (mg/L)	ROD Contaminants of Concern								AWQS	
											GRO (µg/L)	DRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	TCE (µg/L)	1,2-DCA (µg/L)	EDB by 8260C (µg/L)	EDB by 504.1 (µg/L)	TAH (µg/L)	TAqH (µg/L)
ROD CLEANUP LEVELS (µg/L)											**2,200**	**1,500**	**5**	**1,000**	**5**	**5**	**0.05**	**0.05**	**10**	**15**
AP-7662	Outside	11FW5S05WG-B[2]	18-23	6/10/11	434.41	0.88	-15	1.34	5.47	7.00	620	**5,200**	1.7 QH	0.67 QH	ND(0.5)	ND(0.5)	ND(0.2)	NA	NA	NA
		11FW5S33WG		9/13/11	435.52	1.03	48.4	1.42	6.83	4.51	750	**5,200**	1.40	0.5 B	0.19 J	ND(0.5)	ND(2)	NA	NA	NA
		12FW5S01WG		3/7/12	433.84	6.02	-88.9	1.50	6.20	6.80	630	**7,200**	1.9 Q	2.2 Q	0.28 J,Q	ND(0.15) Q	ND(0.2) Q	NA	NA	NA
		12FW5S13WG		8/28/12	434.37	0.16	-38.5	1.66	7.54	4.1	590	**6,200 QL**	1.30	0.44 J	ND(0.1)	ND(0.15)	ND(0.2)	NA	NA	NA
		13FW5S04WG		4/16/13	433.74	0.02	-47.3	2.06	10.2	3.0	680	**7,700**	2.20	0.7	0.25 J	ND(0.15)	ND(0.2)	NA	NA	NA
		14FWOU533WG		10/30/14	436.11	0.35	-46.7	3.75	18.2	6.0	1,000	**8,100**	1.10	0.38 J	0.41 J	0.38 J	ND(1.0)	NA	NA	NA
		15FWOU510WG[3]		5/18/15	NA	NA	NA	3.12	14.8	6.7	740	**7,600**	1.80	0.36 J	ND(0.1)	ND(0.15)	ND(0.2)	NA	NA	NA
		15FWOU559WG		8/25/15	436.23	0.41	26.2	2.76	12.8	8.0	770	**7,000**	1.30 J-	0.41 J,J-	0.34 J,J-	ND(0.15) J-	ND(0.2) J-	NA	NA	NA

Notes:

Bold data is greater than the ADEC and/or ROD action levels

TAH and TAqH were calculated based on the sum of detections and the sum of the LOD for non-detect results. TAH is a summation of BTEX concentrations, and TAqH is a summation of BTEX and PAH compound results

Yellow highlighting indicates the water level was above the well screen at the time of the sampling event, for wells not intended to be screened below the water table

[1] Sample is a Field Duplicate of the sample immediately above.

[2] Sample ID 11FW5S06WG was inadvertantly duplicated. Sample IDs 11FW5S05WG and 11FW5S06WG were amended with "B" for clarification.

[3] Original field form could not be located. As a result, field parameters and water levels are not shown for these samples.

Acronyms:

AWQS - Alaska Water Quality Standard
bgs - below ground surface
btoc - below top of casing
1,2-DCA - 1,2-dichloroethane
DRO - diesel range organics
EDB - 1,2-dibromoethane
ft - feet
GRO - gasoline range organics
LOD - limit of detection
LOQ - limit of quantitation
msl - mean sea level
µg/L - micrograms per liter
mg/L - milligrams per liter
mV - millivolts
NA - not available or not applicable
NM - not measured
QC - quality control
ROD - Record of Decision
TAH - total aromatic hydrocarbons
TAqH - total aqueous hydrocarbons
TOC - top of casing

Data Qualifiers

ND - Not detected at the detection limit (LOD in parentheses; LOQ in parentheses for data prior to 2012.)
B - Result is qualified as a potential high estimate due to contamination present in a blank sample
J - Result is estimated due to a QC issue or because it is less than the LOQ. If result is biased low or high, it is specified as "J-" and "J+", respectively (for 2014 data and later).
Q - Result is estimated due to a QC failure (pre-2014 data only). If direction of bias is known, it is further indicated with a "L" (low) or "H" (high).
M - Result is biased due to matrix interference (pre-2014 data only). If direction of bias is known, it is further indicated with a "L" (low) or "H" (high).

Table 3-5. 2015 Sheen Observations Associated with the Chena River Boom

Date	Chena River Stage Height (ft)		Width of Exposed Shoreline (ft) at 0+60	Sheen Identification											
				Station ID											
	Fairbanks[1]	Chena Lakes[2]		0+20	0+30	0+40	0+50	0+60	0+70	0+80	0+90	1+00	1+10	1+20	1+30
6/1/2015	1.09	16.13	8.9												
6/12/2015	0.55	15.59	11.8												
6/18/2015	0.32	15.43	14.0												
6/23/2015	0.14	15.18	15.6												
7/3/2015	0.65	17.16	11.0												
7/8/2015	1.35	16.53	7.5												
7/14/2015	0.76	15.84	10.9												
7/23/2015	2.43	17.69	2.2												
8/1/2015	3.15	17.93	0*												
8/5/2015	2.18	17.18	3.5												
8/13/2015	2.28	17.26	3.2							X	X	X	X	X	X
8/17/2015	2.25	17.46	3.0												
8/26/2015	3.87	19.27	0*												
9/3/2015	6.25	21.39	0*												
9/8/2015	4.24	19.46	0*												
9/16/2015	4.50	19.58	0*												
9/21/2015	3.70	18.74	0*												
10/1/2015	4.32	19.29	0*												
10/13/2015	2.97	17.85	0*												

Notes:

* - indicates that there is no shoreline visible at the 0+60 station.

X - indicates that sheen was identified at this location during visual inspections

1. River stage height from http://water.weather.gov/ahps2/hydrograph.php?wfo=pafg&gage=chfa2&hydro_type=0
2. River stage height from http://water.weather.gov/ahps2/hydrograph.php?wfo=pafg&gage=mcda2

Acronyms:

ft - feet

ID - identification

CHENA RIVER FLOW DIRECTION

CHENA RIVER

Chena River Boom

132.5

135

WQFS3

NOTE
WQFS3 AREA (ZONE 3)
SHUTDOWN MARCH 2003

WQFS3 RME

FORMER LOCATION OF PROPANE TANK

PROPANE

OXIDIZER

SVE SYSTEM

AS SYSTEM

ZONE4

ZONE2

ZONE1

RME1

RME2

RME3

RME4

RME5

RME6

RME7

SVE KNOCK-OUT DRUM (TYP)

AP-10221MW

AP-10222

AP-10220MW

AP-7727

AP-7728

AP-7729

AP-10235MW

AP-7662

AP-6946

BIKE PATH

GAFFNEY ROAD

LEGEND

AP-7662	SPARGE CURTAIN MONITORING WELL
	TREATMENT SYSTEM BOUNDARY
AS34	AIR SPARGE PROBE
DS1	DEEP AIR SPARGE PROBE
SVE4	VAPOR EXTRACTION PROBE
RME	REMOTE MONITORING ENCLOSURE

NOTES
1. SVE SHUTDOWN IN JANUARY 2004
2. AS SHUTDOWN IN FEBRUARY 2012
3. GRAYSCALE INDICATES PROBES ARE NOT OPERATING

NORTH

0 5 10 20
SCALE IN METERS

FAIRBANKS ENVIRONMENTAL SERVICES
3538 INTERNATIONAL STREET
FAIRBANKS, ALASKA

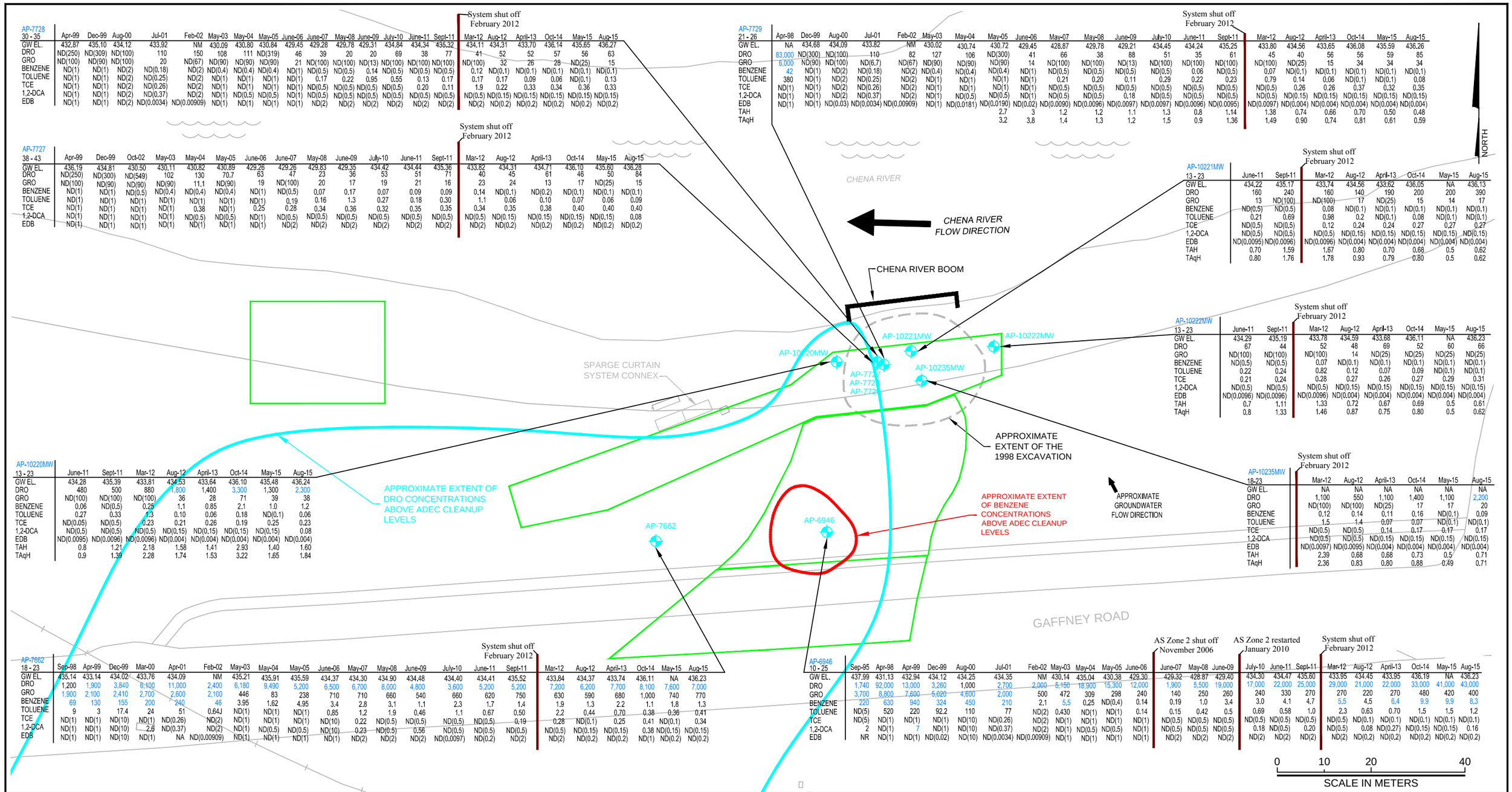
ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

Sparge Curtain Treatment System Layout

2015 Monitoring Report
Operable Unit 5
Fort Wainwright, Alaska

CONTRACT:	FIGURE:	DATE:
W911KB-12-D-0001	3-1	8/16

FIG 3-1 TRE SYS LAY



AP-7728

30 - 35	Apr-99	Dec-99	Aug-00	Jul-01	Feb-02	May-03	May-04	May-05	June-06	June-07	May-08	June-09	July-10	June-11	Sept-11	Mar-12	Aug-12	April-13	Oct-14	May-15	Aug-15
GW EL.	432.87	435.10	434.12	433.92	NM	430.09	430.80	430.84	429.45	429.28	429.78	429.31	434.84	434.34	436.32	434.11	434.31	433.70	436.14	435.65	436.27
DRO	ND(250)	ND(309)	ND(100)	110	150	108	111	ND(319)	46	39	20	20	69	38	77	41	52	52	57	56	63
GRO	ND(100)	ND(90)	ND(100)	20	ND(67)	ND(90)	ND(90)	ND(90)	21	ND(100)	ND(100)	ND(13)	ND(100)	ND(100)	ND(100)	ND(100)	32	26	28	ND(25)	15
BENZENE	ND(1)	ND(1)	ND(2)	ND(0.18)	ND(2)	ND(0.4)	ND(0.4)	ND(0.4)	ND(1)	ND(0.5)	ND(0.5)	0.14	ND(0.5)	ND(0.5)	ND(0.5)	0.12	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
TOLUENE	ND(1)	ND(1)	ND(2)	ND(0.25)	ND(2)	ND(1)	ND(1)	ND(1)	ND(1)	0.17	0.22	0.95	0.55	0.13	0.17	0.17	0.17	0.09	0.06	ND(0.1)	0.13
TCE	ND(1)	ND(1)	ND(2)	ND(0.26)	ND(2)	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	0.20	0.11	1.9	0.22	0.33	0.34	0.36	0.33
1,2-DCA	ND(1)	ND(1)	ND(2)	ND(0.37)	ND(2)	ND(1)	ND(0.5)	ND(0.5)	ND(1)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)
EDB	ND(1)	ND(1)	ND(2)	ND(0.0034)	ND(0.00909)	ND(1)	ND(1)	ND(1)	ND(1)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)

System shut off February 2012

AP-7727

38 - 43	Apr-99	Dec-99	Oct-02	May-03	May-04	May-05	June-06	June-07	May-08	June-09	July-10	June-11	Sept-11	Mar-12	Aug-12	April-13	Oct-14	May-15	Aug-15
GW EL.	436.19	434.81	430.50	430.11	430.82	430.89	429.26	429.26	429.83	429.35	434.42	434.44	435.36	433.82	434.31	434.71	436.10	435.60	436.28
DRO	ND(250)	ND(300)	ND(549)	102	130	70.7	63	47	23	36	53	51	71	40	45	61	46	50	84
GRO	ND(100)	ND(90)	ND(90)	ND(90)	11.1	ND(90)	19	ND(100)	20	17	19	21	16	23	24	13	17	ND(25)	15
BENZENE	ND(1)	ND(1)	ND(0.5)	ND(0.4)	ND(0.4)	ND(0.4)	ND(1)	ND(0.5)	0.07	0.17	0.07	0.09	0.09	0.14	ND(0.1)	ND(0.2)	ND(0.1)	ND(0.1)	ND(0.1)
TOLUENE	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	0.19	0.16	1.3	0.27	0.18	0.30	1.1	0.06	0.10	0.07	0.06	0.09
TCE	ND(1)	ND(1)	ND(1)	ND(1)	0.38	ND(1)	0.25	0.28	0.34	0.36	0.32	0.35	0.35	0.34	0.35	0.38	0.40	0.40	0.40
1,2-DCA	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.5)	ND(1)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	0.08
EDB	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)	ND(2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)

System shut off February 2012

AP-7729

21 - 26	Apr-98	Dec-99	Aug-00	Jul-01	Feb-02	May-03	May-04	May-05	June-06	May-07	June-09	July-10	June-11	Sept-11	Mar-12	Aug-12	April-13	Oct-14	May-15	Aug-15
GW EL.	NA	434.68	434.09	433.82	NM	430.02	430.74	430.72	429.45	428.87	429.78	429.21	434.45	434.24	435.25	433.80	434.56	433.65	436.08	435.59	436.26
DRO	83,000	ND(300)	ND(100)	110	82	127	106	ND(300)	41	66	38	88	51	35	61	45	40	56	56	59	85
GRO	6,000	ND(90)	ND(100)	ND(6.7)	ND(67)	ND(90)	ND(90)	ND(90)	14	ND(100)	ND(100)	ND(13)	ND(100)	ND(100)	ND(100)	ND(100)	ND(25)	15	34	34	34
BENZENE	42	ND(1)	ND(2)	ND(0.18)	ND(2)	ND(0.4)	ND(0.4)	ND(0.4)	ND(1)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	0.07	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
TOLUENE	380	ND(1)	ND(2)	ND(0.25)	ND(2)	ND(1)	ND(1)	ND(1)	ND(1)	0.21	0.20	0.11	0.29	0.22	0.23	0.79	0.14	0.06	ND(0.1)	ND(0.1)	0.08
TCE	ND(1)	ND(1)	ND(2)	ND(0.26)	ND(2)	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	0.26	0.26	0.37	0.32	0.35
1,2-DCA	ND(1)	ND(1)	ND(2)	ND(0.37)	ND(2)	ND(1)	ND(0.5)	ND(0.5)	ND(1)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)
EDB	ND(1)	ND(1)	ND(0.03)	ND(0.0034)	ND(0.00909)	ND(1)	ND(0.0181)	ND(0.0190)	ND(0.02)	ND(0.0090)	ND(0.0096)	ND(0.0097)	ND(0.0097)	ND(0.0096)	ND(0.0095)	ND(0.0097)	ND(0.004)	ND(0.004)	ND(0.004)	ND(0.004)	ND(0.004)
TAH								2.7	3	1.2	1.2	1.1	1.3	0.8	1.14	1.38	0.74	0.66	0.70	0.50	0.48
TAqH								3.2	3.8	1.4	1.3	1.2	1.5	0.9	1.36	1.49	0.90	0.74	0.81	0.61	0.59

System shut off February 2012

AP-10221MW

13 - 23	June-11	Sept-11	Mar-12	Aug-12	April-13	Oct-14	May-15	Aug-15
GW EL.	434.22	435.17	433.74	434.56	433.62	436.05	NA	436.13
DRO	160	240	160	140	190	200	200	390
GRO	13	ND(100)	ND(100)	17	ND(25)	15	14	17
BENZENE	ND(0.5)	ND(0.5)	0.08	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
TOLUENE	0.21	0.69	0.98	0.2	ND(0.1)	0.08	ND(0.1)	ND(0.1)
TCE	ND(0.5)	ND(0.5)	0.12	0.24	0.24	0.27	0.27	0.27
1,2-DCA	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)
EDB	ND(0.0095)	ND(0.0096)	ND(0.0096)	ND(0.004)	ND(0.004)	ND(0.004)	ND(0.004)	ND(0.004)
TAH	0.70	1.59	1.67	0.80	0.70	0.68	0.5	0.62
TAqH	0.80	1.76	1.78	0.93	0.79	0.80	0.5	0.62

System shut off February 2012

AP-10222MW

13 - 23	June-11	Sept-11	Mar-12	Aug-12	April-13	Oct-14	May-15	Aug-15
GW EL.	434.29	435.19	433.78	434.59	433.68	436.11	NA	436.23
DRO	67	44	52	48	69	52	60	66
GRO	ND(100)	ND(100)	ND(100)	14	ND(25)	ND(25)	ND(25)	ND(25)
BENZENE	ND(0.5)	ND(0.5)	0.07	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
TOLUENE	0.22	0.24	0.82	0.12	0.07	0.09	ND(0.1)	ND(0.1)
TCE	0.21	0.24	0.28	0.27	0.26	0.27	0.29	0.31
1,2-DCA	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)
EDB	ND(0.0096)	ND(0.0096)	ND(0.0096)	ND(0.004)	ND(0.004)	ND(0.004)	ND(0.004)	ND(0.004)
TAH	0.7	1.11	1.33	0.72	0.67	0.69	0.5	0.61
TAqH	0.8	1.33	1.46	0.87	0.75	0.80	0.5	0.62

System shut off February 2012

AP-10220MW

13 - 23	June-11	Sept-11	Mar-12	Aug-12	April-13	Oct-14	May-15	Aug-15
GW EL.	434.28	435.39	433.81	434.53	433.64	436.10	435.48	436.24
DRO	480	500	880	1,800	1,400	3,300	1,300	2,300
GRO	ND(100)	ND(100)	ND(100)	36	28	71	39	38
BENZENE	0.06	ND(0.5)	0.25	1.1	0.85	2.1	1.0	1.2
TOLUENE	0.27	0.33	1.3	0.10	0.06	0.18	ND(0.1)	0.06
TCE	ND(0.05)	ND(0.5)	0.23	0.21	0.26	0.19	0.25	0.23
1,2-DCA	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)	0.08
EDB	ND(0.0095)	ND(0.0096)	ND(0.0096)	ND(0.004)	ND(0.004)	ND(0.004)	ND(0.004)	ND(0.004)
TAH	0.8	1.21	2.18	1.58	1.41	2.93	1.40	1.60
TAqH	0.9	1.39	2.28	1.74	1.53	3.22	1.65	1.84

System shut off February 2012

AP-10235MW

18-23	Mar-12	Aug-12	April-13	Oct-14	May-15	Aug-15
GW EL.	NA	NA	NA	NA	NA	NA
DRO	1,100	550	1,100	1,400	1,100	2,200
GRO	ND(100)	ND(100)	ND(25)	17	17	20
BENZENE	0.12	0.14	0.11	0.16	ND(0.1)	0.09
TOLUENE	1.5	1.4	0.07	0.07	ND(0.1)	ND(0.1)
TCE	ND(0.5)	ND(0.5)	0.14	0.17	0.17	0.17
1,2-DCA	ND(0.5)	ND(0.5)	ND(0.15)	ND(0.15)	ND(0.15)	ND(0.15)
EDB	ND(0.0097)	ND(0.0095)	ND(0.004)	ND(0.004)	ND(0.004)	ND(0.004)
TAH	2.39	0.68	0.68	0.73	0.5	0.71
TAqH	2.36	0.83	0.80	0.88	0.49	0.71

System shut off February 2012

AP-7662

18 - 23	Sep-98	Apr-99	Dec-99	Mar-00	Apr-01	Feb-02	May-03	May-04	May-05	June-06	May-07	May-08	June-09	July-10	June-11	Sept-11	Mar-12	Aug-12	April-13	Oct-14	May-15	Aug-15
GW EL.	435.14	433.14	434.02	433.76	434.09	NM	435.21	435.91	435.59	434.37	434.30	434.90	434.48	434.40	434.41	435.52	433.84	434.37	433.74	436.11	NA	436.23
DRO	1,200	1,900	3,840	6,100	11,000	2,400	6,180	9,490	5,200	6,500	6,700	8,000	4,800	3,600	5,200	5,200	7,200	6,200	7,700	8,100	7,600	7,000
GRO	1,900	2,100	2,410	2,700	2,600	2,100	446	83	238	710	710	660	540	660	620	750	630	590	680	1,000	740	770
BENZENE	69	130	155	200	240	46	3.95	1.62	4.95	3.4	2.8	3.1	1.1	2.3	1.7	1.4	1.9	1.3	2.2	1.1	1.8	1.3
TOLUENE	9	3	17.4	24	51	0.64J	ND(1)	ND(1)	ND(1)	0.85	1.2	1.9	0.46	1.1	0.67	0.50	2.2	0.44	0.70	0.38	0.36	0.41
TCE	ND(1)	ND(1)	ND(10)	ND(1)	ND(0.26)	ND(2)	ND(1)	ND(1)	ND(1)	ND(1)	0.22	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	0.28	ND(0.1)	0.25	0.41	ND(0.1)	0.34
1,2-DCA	ND(1)	ND(1)	ND(10)	2.6	ND(0.37)	ND(2)	ND(1)	ND(0.5)	ND(0.5)	ND(10)	0.23	ND(0.5)	0.56	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.15)	ND(0.15)	0.38	ND(0.15)	ND(0.15)
EDB	ND(1)	ND(1)	ND(10)	ND(1)	NA	ND(0.00909)	ND(1)	ND(1)	ND(1)	ND(1)	ND(2)	ND(2)	ND(2)	ND(0.0097)	ND(0.2)	ND(2)	ND(2)	ND(0.2)	ND(0.2)	ND(1)	ND(0.2)	ND(0.2)

AS Zone 2 shut off November 2006 · AS Zone 2 restarted January 2010 · System shut off February 2012

AP-6946

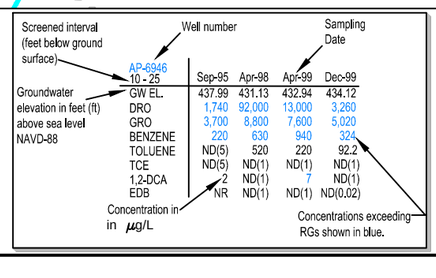
10 - 25	Sep-95	Apr-98	Apr-99	Dec-99	Aug-00	Jul-01	Feb-02	May-03	May-04	May-05	June-06	June-07	May-08	June-09	July-10	June-11	Sept-11	Mar-12	Aug-12	April-13	Oct-14	May-15	Aug-15
GW EL.	437.99	431.13	432.94	434.12	434.25	434.35	NM	430.14	435.04	430.38	429.30	429.32	428.87	429.40	434.30	434.47	435.60	433.95	434.45	433.95	436.19	NA	436.23
DRO	1,740	92,000	13,000	3,260	1,000	2,700	2,000	5,150	18,300	15,300	12,000	1,900	5,500	19,000	17,000	22,000	25,000	29,000	21,000	22,000	33,000	41,000	43,000
GRO	3,700	8,800	7,600	5,020	4,600	2,000	500	472	309	298	240	140	250	260	240	330	270	270	220	270	480	420	400
BENZENE	220	630	940	324	450	210	2.1	5.5	0.25	ND(0.4)	0.14	0.19	1.0	3.4	3.0	4.1	4.7	5.5	4.5	6.4	9.9	9.9	8.3
TOLUENE	ND(5)	520	220	92.2	110	77	ND(2)	0.430	ND(1)	ND(1)	0.14	0.15	0.42	0.5	0.69	0.58	1.0	2.3	0.63	0.70	1.5	1.5	1.2
TCE	ND(5)	ND(1)	ND(1)	ND(1)	ND(10)	ND(0.26)	ND(2)	ND(1)	ND(1)	ND(1)	ND(1)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
1,2-DCA	2	ND(1)	7	ND(1)	ND(10)	ND(0.37)	ND(2)	ND(1)	ND(0.5)	ND(0.5)	ND(1)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
EDB	NR	ND(1)	ND(1)	ND(0.02)	ND(10)	ND(0.0034)	ND(0.00909)	ND(1)	ND(1)	ND(1)	ND(1)	ND(2)	ND(2)	ND(2)	ND(0.0097)	ND(0.2)	ND(2)	ND(2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.2)

LEGEND:

AP-6946	Monitoring Well	TAH	Total Aromatic Hydrocarbons
	Approximate DRO Plume	TAqH	Total Aquaeous Hydrocarbons
	Approximate Benzene Plume	TCE	Trichloroethene
	Treatment System Boundary	LOD	Limits of Detection
1,2-DCA	1,2-Dichloroethane	ND(4)	Not detected (LOD)
EDB	1,2-Dibromoethane	NA	Not Analyzed
GRO	Gasoline Range Organics	RG	Remedial Goal
DRO	Diesel Range Organics	µg/L	Micrograms per Liter

NOTES:

1. Due to space limitations, analytical data for only one sample event per year between 1999 and 2010 is shown. Spring / summer data is shown over fall / winter data because concentrations are generally higher.
2. TAH and TAqH concentrations for 2012 and 2013 were calculated using LOD for ND analytes.
3. Cleanup level for GRO changed from 1,300 µg/L to 2,200 µg/L in October 2008.
4. Groundwater elevations are shown in either NAVD-88 or NGVD-29 datum's. A comprehensive survey of the monitoring wells in the groundwater sampling program occurred in the summer of 2010. All Elevations after July 2010 are in NAVD-88.
5. AP-7662 is shown because it is within proximity of the Sparge Curtain.
6. SVE portion of the treatment system was shutdown in January 2004. The AS portion of the treatment system was shutdown in February 2012.



Contaminant of Concern	RG µg/L
DRO	1,500
GRO	2,200
BENZENE	5
TOLUENE	1,000
TCE	5
1,2-DCA	5
TAH	10
TAqH	15

FAIRBANKS ENVIRONMENTAL SERVICES
3538 INTERNATIONAL STREET
FAIRBANKS, ALASKA

ALASKA DISTRICT
CORPS OF ENGINEERS
ANCHORAGE, ALASKA

Sparge Curtain Groundwater Contaminant Concentrations

2015 Monitoring Report
Operable Unit 5
Fort Wainwright, Alaska

CONTRACT: W911KB-12-D-0001 | FIGURE: 3-2 | DATE: 8/16

FIG 3-2 SC ANALYTICAL